SCIENTIFIC AMERICAN.

THE ADVOCATE OF INDUSTRY AND ENTERPRISE, AND JOURNAL OF MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME I.] NEW-YORK, THURSDAY, APRIL 9, 1846. [NUMBER 30.]

THE SCIENTIFIC AMERICAN

PUBLISHED EVERY THURSDAY MORNING, AT THE

SUN BUILDINGS,

—Entrance 128 Fulton st., and 89 Nassau st.—

ALSO, AT NO. 13 COURT ST., BOSTON, AND NO. 29 ARCADE, PHILADELPHIA.

(The Principal Office being at New York,)

By RUFUS PORTER.

Each number of this paper is furnished with from two to five ORIGINAL ENGRAVINGS, many of them elegant, and illustrative of NEW INVENTIONS, SCIENTIFIC PRINCIPLES, and CURIOSITIES; and contains as much Interesting Intelligence as six ordinary daily papers, consisting o notices of the progress of Mechanical and other Scientific Improvements,—American and Foreign Inventions Catalogues of American Patents,—Scientific Essays, illustrative of the principles of the Sciences of MECHANICS, CHEMISTRY, and ARCHITECTURE;—Instruction in various Arts and Trades;—Curious Philosophical Expements;—Miscellaneous Intelligence, Poetry and, occasionally, Music.

TERMS.—"The Scientific American" will be furnished to subscribers at $2, per annum,—one dollar in advance, and the balance in six months.

Five copies will be sent to one address six months, for four dollars in advance.

Any person procuring four or more subscribers, will be entitled to a commission of twenty-five cents each.

TERMS OF ADVERTISING.—For 10 lines, or less, 50 cents for the first, and 12 1-2 cents for every subsequent insertion.

Clear the Way.

Men of thought! be up and stirring
Night and day;
Sow the seed—withdraw the curtain,
Clear the way!
Men of action, aid and cheer them,
As ye may.
There's a fount about to stream,
There's a light about to beam,
There's a warmth about to glow,
There's a flower about to blow;
There's a midnight blackness changing
Into gray;
Men of thought, and men of action,
Clear the way!

Once the welcome light has broken,
Who shall say,
What the unimagined glories
Of the day?
What the evil that shall perish
In its ray!
Aid the dawning, tongue and pen;
Aid it, hopes of honest men;
Aid it paper—aid it type—
Aid it, for the hour is ripe,
And our earnest must not slacken
Into play.
Men of thought, and men of action!
Clear the way!

Lo! a cloud's about to vanish
From the day;
Lo! the right's about to conquer,
Clear the way!
And a brazen wrong to crumble
Into clay.
With that right shall many more
Enter smiling at the door;
With the giant wrong shall fall,
Many others, great and small,
That for ages long have held us
For their prey;
Men of thought, and men of action,
Clear the way!

Cato Redivivus.

My voice is still for war!
Odd's niggers! can the Senate long debate
Which of the two to choose, "*the whole or none?*"
No,—let us rise at once, snatch up our broomsticks,
And with the force of forty thousand wildcats,
Set on John Bull, eat up the Rocky Mountains,
Pump dry the Atlantic, and charge home upon him.
Perhaps some fist more knuckly than the rest,
May smash his ribs and give him a sound licking.
Rise! fathers, rise! the coons demand your help;
Rise and revenge your murdered musquashes,
Or lose their skins. The corps of slaughtered woodchucks
Manure the fields of Oregon, while we
Sit here on wages of eight dollars a day,
Besides the plunder of red tape and pen-knives,
Chopping cold logic on a "previous question;"
Halting betwixt a paltry hawk and buzzard,
While this great cause impends, whether we shall
Now sacrifice our pantaloons to honor,
Or wear them out with long heroic sitting.
Rouse up, for shame! ye western snapping-turtles,
And show yourselves true sons of gunpowder.
Rouse up, ye horse-and-alligator Trojans!
Rouse up, I say! our brothers of old Buncombe
Flourish their speeches, and cry out for battle!
Tom Thumb's great shade complains that we are slow,
And Falstaff's ghost walks unrevenged among us.

TO SALLY ANN.

Soft is the down of the butterfly's wing,
Soft is the whisper when lovers speak;
Soft is the light which moonbeams fling,
But softer by far is my ladye-love's cheek.

SALLY'S REPLY.

Soft am 'taters all smash'd up,
And mush are soft as soft kin be;
But softer be's that silly pup,
Vot writ that silly varse to me!

"UNDER THE ROSE."—The following is said to be the origin of this now very common expression:—Roses from Italy were first planted in England, in the year 1522, and were consecrated as presents from the Pope, and placed over the confessionals as symbols of security. Hence the phrase, "under the rose."

MUNGER'S NEW YANKEE TURBINE WATER-WHEEL.

Fig. 1.

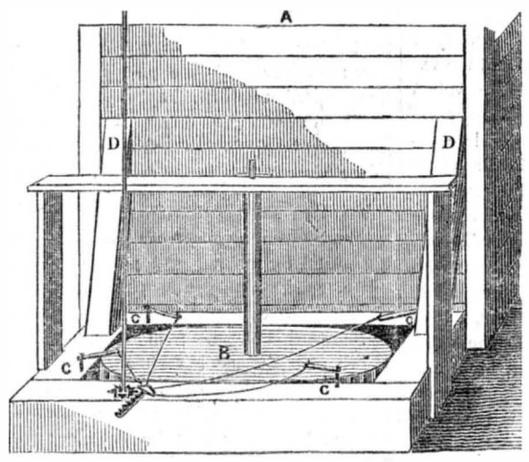
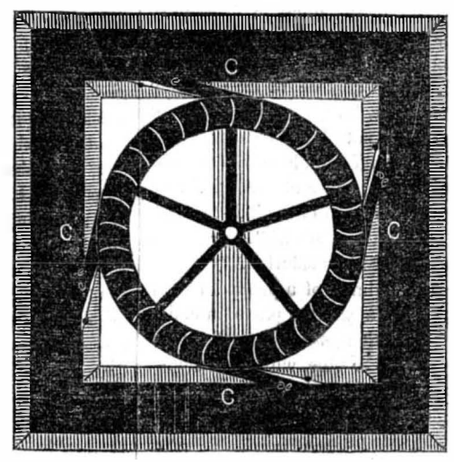


Fig. 2,



INTRODUCTORY REMARKS.—We some weeks since presented our readers with what purported to be a description of Mr. Munger's improvement: but having at that time no other guide than an imperfect engraving, we did not fully understand either its peculiar construction or excellence.—This water-wheel combines several important advantages, which can not be found in any other wheel in use. It works double the power in proportion to the quantity and fall of water, that is produced by either undershot or re-acting wheels:—is simple in construction, and not liable to be impaired:—is portable, and readily adjusted for operation:—is not choked by backwater, nor affected by frost in winter; and is susceptible of the self-regulating principle, by means of a governor or regulator, in great perfection. It has been proved by actual experiment to work 76 per cent. of the whole co-efficient power of the water.

EXPLANATION.—The wheel, as shown in the engraving, is enclosed by a square hollow water chest, C C C C, which is supplied with water from the bulk-head or reservoir, A, by the vertical flumes, D D, and the water is conducted to the floats or buckets of the wheel, B by four small oblique adjutages at the points where the water-chest comes in contact with the wheel, as shown at e e e e, fig. 2. Figure 1 shows the ordinary appearance of the wheel and water-chest in perspective: fig. 2 is a vertical sectional view, showing the interior of the wheel, water-chest and adjutages, with the regulating gates. The buckets of the wheel being curved, as shewn in fig 2, they receive the whole force of the water with great advantage. In cases where the motion of the wheel is required to be regulated by a governor, each adjutage or orifice from the water-chest to the wheel, is furnished with a small valve-gate attached to a vertical rod, on the head of which is a small crank-lever, and the four are connected by wires to a small horizontal rack, which is operated by a pinion attached to another upright rod, the head of iwhich is connected to the regulator. This appendage is slightly shown in fig. 1, but is not required in the wheels for common use. As this invention requires only to be seen to be approved, the inventor respectfully invites all whom it may concern, to examine the wheels at Chickopee Falls, Mass., where they are manufactured by Wm. Moore; or at the residence of his agents, Amasa Walker, East Brookfield, Mass.; William Smith, Akron, O.; Columbus Green, Enosburg, Vt.; Jacob Hart, Cooperstown, N. Y., Charles Stott, Lowell, Mass.; Chandler Sprague, North Bridgewater, Mass.; Saul Burt, South Hampton. Mass.; Col. Stone, Goshen, Mass., where they are in operation, having superseded the breast-wheels formerly used. A working model may also be seen at the office of the Scientific American, No. 128 Fulton street (Sun Buildings) New York. Also at No. 9 Milk st., Boston, and at the office of Wm. Barstow, No. 3 1-2 South Seventh st., Philadelphia. For further intelligence address the inventor, Hiram Munger, Chickopee Falls, Mass.

THE TRUE GENTLEMAN.—Moderation, decorum, and neatness, distinguish the gentleman. He is at all times affable, diffident and studious to please; intelligent and polite; his behavior is pleasant and graceful. When he enters the dwelling of an inferior, he endeavors to hide, if possible, the difference between their rank in life. Ever ready to assist those around him, he is neither haughty nor overbearing. In the mansions of the great, the correctness of his mind induces him to bend to etiquette, but not to stoop to adulation. So far from being insolent to inferiors, he will observe a scrupulous tenderness of manner towards them—a care of word and action that shall lighten the burden of humility which they must necessarily feel, as much as possible. This refinement of heart is the most prominent characteristic of a high and noble spirit. It is the only mark of a lady or gentleman that is wholly unequivocal. When we see a person very choice of his words, and very dainty at the table, yet capable of insulting the unfortunate, or ridiculing distress, we always think of the ass in the lion's skin.

STUDY INDISPENSABLE TO GREANTESE.—It is a fact well worthy the attention of young men, who have the misfortune to consider themselves as *great geniuses*, that nearly all the master-spirits of the British Parliament have been distinguished as scholars, before they became eminent as statesmen. If Sheridan is urged as an exception, let it be remarked that only *one* Sheridan has ever been heard on the floor of St. Stephen's; and that the splendid and terrible assailant of Warren Hastings sunk at last into a mere writer of comedies, and manager of a play-house. Chatham, and Pitt, and Fox, and Burke, and Channing, and Brougham, with many others, whose names shine with a lustre only a little inferior to those mentioned, were distinguished for their classical attainments. They laid the foundation of their future greatness in the cloisters of the university. Since the world began, genius has accomplished nothing without industry; and no error can be more fatal to the young aspirant after distinction and usefulness, than that indolent self-complacency which rests on the supposed possession of exalted genius.

STATISTICS OF LOWELL.—The whole number of Mills running, exclusive of print-works, is 33. The number of spindles is 228,858. The whole amount of capital stock in the Corporations who own these works is $10,550.000. The average wages of females, clear of board, per week, is $2.00; average wages of males, clear of board, per day, 80 cents; average amount of wages paid, per month, $177,600; medium produce of a loom, No. 14 yarn, yards per day, 45; medium produce of a loom, No. 30 yarn, yards per day, 33; average per spindle, yards per day, 1½; consumption of potato starch, per annum, tons, 550; consumption of flour starch, per annum, lbs., 100,000; consumption of flour for starch, per annum, bbls., 775.

The Middlesex Company make use annually of 4,000,000 teasels, 1,000,000 lbs. fine wool, 50,000 lbs. glue, $34,000 worth of dye stuffs, and $11,000 worth of Soap.

The Lowell Machine Shop, included among the above mills, can furnish machinery complete for a mill of 6,000 spindles, in three months.

THE LOST SISTER FOUND.—The New Orleans Picayune relates the following painful incident. A sailor sauntering through the streets of that city, somewhat intoxicated, met a young girl of abandoned character, about sixteen years of age, whom he invited to one of the haunts of vice. As they entered, the sailor called for liquor, and while at the bar, the girl, dropping her glass, recognized her own brother! The scene that followed,—the despair of the brother and sister, and their lamentations over each other's disgrace, can readily be imagined. A policeman found them weeping in the streets, the brother raving violently and threatening to kill himself and her. They had separated, eight years before, at the residence of their parents in New York, the sister being then a pretty little fair-haired girl. In his paroxysms of grief, the poor sailor thanked heaven that he had made the discovery thus early.

AN EVENT OF THE LAST WAR.—The most brilliant naval action of the last war, undoubtedly, was that of the old American frigate Constitution, 44, commanded by Commodore Stewart, when she captured the two British corvettes, Cyenne and Levant, of greatly superior force, each of them being equal to the old fashioned 32 gun frigates. The handling of the American frigate throughout was scientific and unexceptionable. By no manœuvering could either of the British vessels obtain a position to rake the Constitution. Shift their ground as they would, old Ironsides was between them blazing away upon both vessels at the same time. During the whole action, Stewart, instead of mounting the horse-block, sat in a more exposed situation, astride of the hammock nettings, the better to observe the manœuvering of his antagonists.

ADVICE TO YOUNG MEN.—Let the business of every one alone, and attend to your own. Don't buy what you don't want; use every hour to advantage, and study even to make leisure hours useful; think twice before you spend a shilling, remember you will have another to make for it; find recreation in looking after your business, and so your business will not be neglected in looking after recreation; buy low, sell fair, and take care of the profits; look over your books regularly, and if you find an error, trace it out; should a stroke of misfortune come upon you in trade, retrench—work harder, but never fly the track; confront difficulties with unflinching perseverance, they will disappear at last; though you should even fall in the struggle, you will be honored; but shrink from the task and you will be despised.

NARROW ESCAPE AT PATERSON.—We are informed that Mrs. John Archdeaken and another lady, on Saturday last, were sitting in the house, about 30 or 40 yards from where some workmen were blasting rocks at the reservoir, near the Falls, when suddenly they found their chairs knocked from under them, and themselves lying on the floor. On ascertaining the cause of this sudden "change of position," it appeared a fragment of rock had been thrown by the blast, through the wall of the house; and providentially entered so low down that they escaped injury—except that inflicted on their nerves by the shock. If the fragment had entered the house a foot higher it might have killed both of them.—*Paterson Intel.*

LEAD MINES IN TEXAS.—According to the Houston Telegraph, a very valuable lead mine has been discovered on a small tributary of the Trinity, about twenty miles west of Dallas. This mine was first discovered by a party of surveyors who were engaged in running the lines of Mercer's colony. One of the party found a black rock, which he noticed was remarkably heavy, and he placed it in the camp fire; in a short time a large portion of it was melted, and pure lead was obtained sufficient to run a number of bullets. The editor of the Telegraph is of the opinion that there is a very extensive region of country, extending from the Trinity to the San Saba valley, which contains as valuable lead mines as those of Missouri or Wisconsin.

A WATCHMAKER'S RUSE.—A poor watchmaker came down to settle at ———. The village was populous. This person was utterly unknown, but he had ingeniously hit on a project to procure employment. He contrived, when the door of the church was open daily, to send up his son a lad of address, to the church tower unseen, and to alter the clock.—This the boy was enabled to do by a slight knowledge of his fathers business. This measure, of course, made all the watches in the neighborhood wrong so repeatedly, (and every one swears by his church clock,) that the owners sent them to the new comer to be cleaned and repaired. This ruse established the artizan. The question arises who of our watch makers has a little boy?

DRY DOCKS.—The existing accommodations for repairing vessels are behind the demands of the shipping of this port. Wednesday morning, last week, there were no less than five vessels waiting for admission at one of the dry docks, and probably the same state of things exists at the other docks fhr repairs. We are glad to learn, however, that a company has been formed to construct a large dock on Gilbert's plan, in the course of the present summer, capable of raising vessels of first class frigate size.—*Sun.*

GOLD IN SOUTH CAROLINA.—We were shown, a few days ago, says the Laurensville Herald, three very fine specimens of this metal, weighing respectively 4 dwts. 18 grs., 2 dwts. 2 grs., and 1 dwt. 6 grs., obtained from the plantation of Dr. John W. Simpson, situated about six miles above this place. The specimens seem to be free from any impurity, and were shown to us as they were taken from the soil, without having undergone the usual process of refinement.

SAGE REMARK.—True greatness of soul is found in him who, with an independent, deep-searching mind, is ready to "follow truth wherever she leads the way"—who is open at all times to conviction, and rejoices in the light of every new discovery.—Such are an honor and a blessing to their race, and their names shall live in the grateful remembrance of posterity.

THE DUKE OF WELLINGTON.—At a late party at the house of Lord Stanly in London, a young lady asked the Duke of Wellington "if it were true that one Englishman could beat three Frenchmen?" The Lion Duke replied, that, "when a boy, he had been told so; but he thanked heaven he had never been placed in a situation to try the experiment!"

Glossary of Mechanical Terms.

ÆOLAPILE—A hollow metallic ball, with a small orifice, to show the power of steam.

ANNEAL—To expose iron, or other metals, to the action of fire, in order to reduce them to a greater degree of tenacity.

ANVIL—A block or mass of iron, with a hardened steel surface, on which smiths and other artificers hammer and fashion their work.

ARBOR—The principal spindle or axis which communicate motion to the other parts of a machine.

ARM—The length of the sail of a wind-mill measured from the axis.

ARMS (axle)—The two ends of an axle-tree; projecting supports in machinery.

ASH-HOLE—A receptacle for the ashes which fall from the hearth of a furnace.

ATTRACTION OF COHESION—The attraction which holds the particles of matter to each other.

—— OF GRAVITATION—The force which causes all ponderous bodies to fall towards the earth's centre.

AUGER—The whimble or tool used in the boring of woods.

AUTOMATON—A machine which, by an internal arrangement, seems to move of itself.

AXIS—The spindle or centre of any rotary motion.

—— OF OSCILLATION—The shaft upon which any body vibrates.

—— IN PERITROCHIO—One of the six mechanical powers; usually called the wheel and axle.

—— OF ROTATION—The shaft round which any body revolves.

BACKBOARDS—Boards attached to the rims of the water-wheel, to prevent the water running off the floats into the interior of the wheel.

BACKLASH—The hobbling movement of a wheel not fixed firm on its axis.

BACK-WATER—The water which impedes the motion of a water-wheel.

BALANCE—An instrument which, by the application of the lever, exhibits the weights of bodies.

BATTEN—The moveable lath or bar of a loom which serves to strike in or close, more or less, the threads of a woof a long narrow slip of wood, in carpentry.

BATTER—A machine used early in the process of the cotton manufacture.

BAYONET—A piece of wood or metal with two legs to disengage and re-engage machinery; (vide Mill-geering.)

BEATS—The strokes made by the pallets or fangs of a spindle in clock or watch movements.

BEETLE—An implement for flattening the texture of linen or woollen cloth: a heavy mallet.

BEVEL-GEER—Wheels in which the teeth are set at angles of various degrees from the radius.

BITTS—Small tools used in boring.

BLOOM—A bar of iron to be passed through the rollers of an iron mill to be elongated into a bar, rod, or hoop.

BLUNGING—The act of mixing or kneading clay for the potter's use.

BOBBINS—Little circular pieces of wood on which the thread of cotton, silk, &c., is wound.

BOLTER—A machine for sifting meal.

BOLTING-CLOTH—A cloth through which the sifted meal runs.

BRACE—A curved instrument of iron or wood for moving small boring tools called bits.

BRACKET—A support fixed to a wall.

BRAKE—A machine for separating the cuticle or outer skin from the flax plant.

BRAZING—The soldering or joining two pieces of metal by melting of brass between the pieces to be joined.

BREAST—The first part of a revolver carding engine.

BREASTING—The circular sweep of masonry, &c., which surrounds the shuttle side of a breast-wheel.

BREAST-PLATE—A small piece of steel with holes to receive the ends of a drill.

BREAST-WHEEL—A water-wheel on which water is admitted at or nearly level with the axis.

BUFF-STICK—A piece of wood covered with buff leather, used for polishing.

BULLET—To alter the wards of a lock in such a manner that they may be passable by more than one key.

BUSH—A hole in the nave of a wheel.

CÆTERIS PARIBUS—Other things being equal.

CALIBRE—The diameter of a hole.

CAULK—To foree oakum, tow, and other material, in the joints of vessels, to make them steam, air, or water-tight.

CAMB—An eccentric.

CAPSTAN—A vertical post resting on a pivot and turned by powerful arms or levers, to raise heavy weights by crane work: a windlas.

CARBON—Charcoal.

CARD—A piece of leather containing numerous iron-wire teeth, forming a species of comb: (*vide* Cotton Manufacture.)

CASE-HARDEN—The process of converting the surface of iron into steel.

CASTING—The act of forming metal or other matter into any required shape, by pouring it into moulds while in a fluid state.

CATCH—Various contrivances in mechanics, to act on the principle of a latch.

CEMENT—A composition for joining hard bodies.

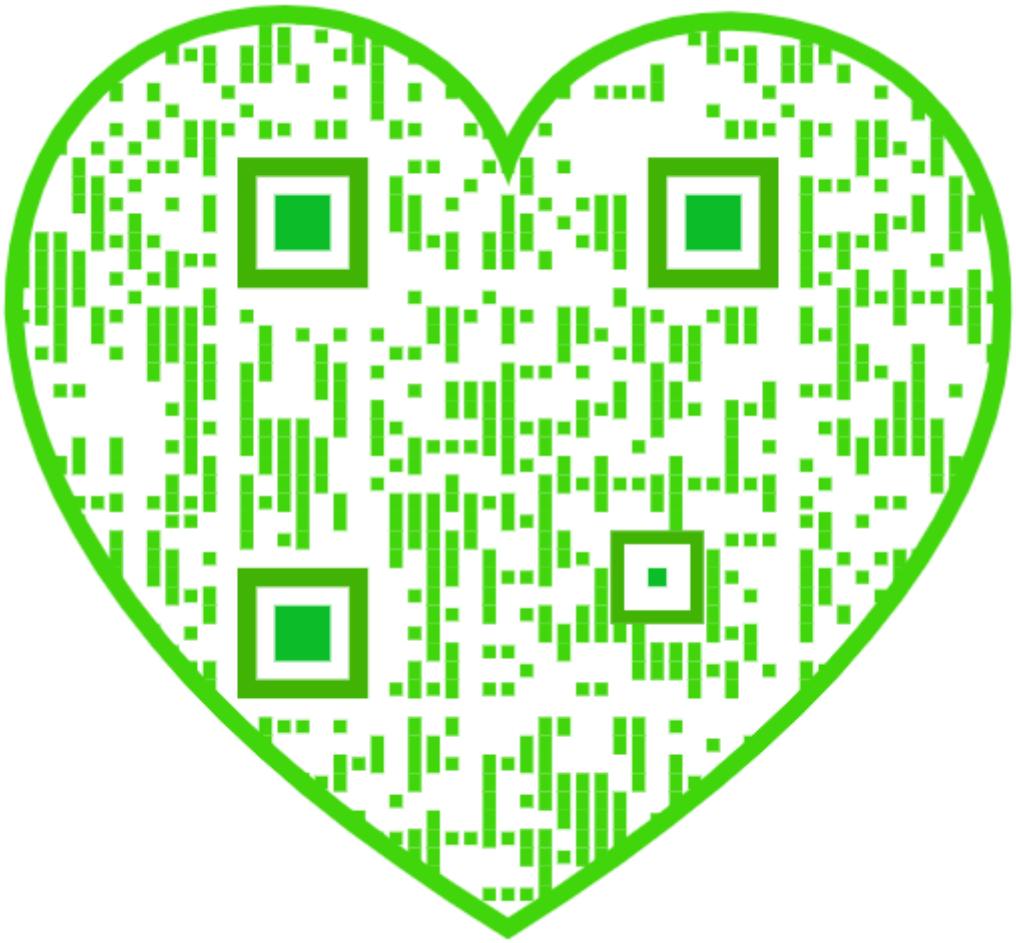
CENTRE-BIT—A boring tool in carpentry.

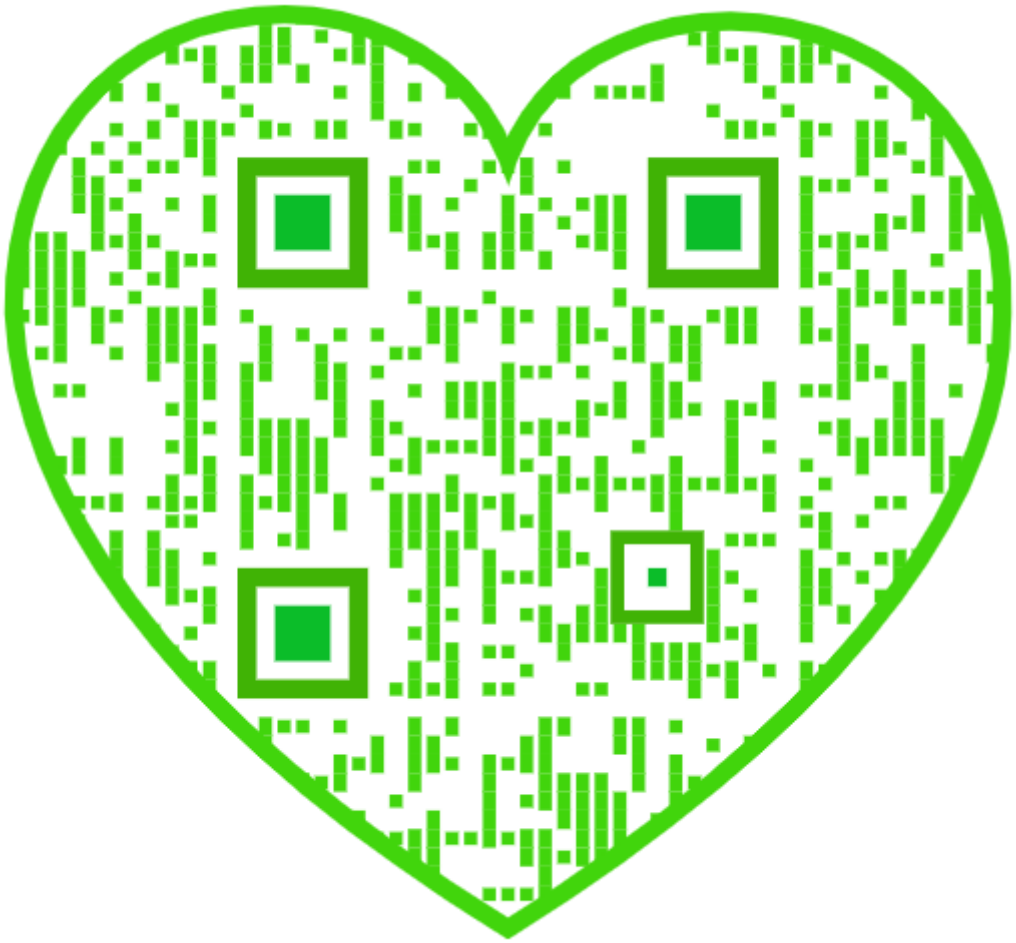
(To be continued.)

PRECOCITY.—"Would you like me to give you a dollar?" asked a little boy of a gentleman he met in the street. "Certainly," was the reply. "Very well, then," said the boy, "do unto others as you would others should do unto you."

POVERTY VS. PIETY.—Dow, Jr., says, when a man becomes poor, and gets hard up, with big owl-eyed starvation staring at him from a short distance, he will turn off and go devil-ward in spite of all pious pushings to the contrary. Righteousness and roast beef are luxuries that can't be afforded.

© 1846 SCIENTIFIC AMERICAN, INC.





SCIENTIFIC AMERICAN

NEW-YORK, THURSDAY, APRIL 9.

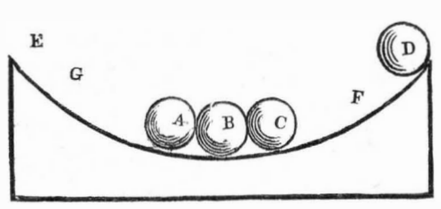
POST MASTERS—Who receive this paper, will confer a special favor by mentioning the subject occasionally to scientific mechanics.

EX-SUBSCRIBERS.—We shall send a copy of this number to some who have been subscribers, but the term of whose subscription has expired. We would inform them that we have reserved for them the numbers which have been issued since the termination of the first six months, and shall be ready to send them whenever they may renew their subscription.

BACK NUMBERS.—We shall forward No. 1 to those who want the early numbers, immediately. Any person who may have on hand Nos. 3, 5, or 9, and will forward the same by mail to this office, shall receive three successive copies sent to their address, in exchange, for each copy of either of the above mentioned numbers, thus sent. It will be expected, of course, that the address of the person to whom the papers were originally sent, will be found on the margin.

Science of Mechanics.

(Continued from No. 29.)



ELASTICITY OF BODIES.—There are various substances which are capable of being either compressed or distended by force or pressure, but which forcibly resume their original shape or position, and that instantly, when the pressure is removed. This tendency in bodies is called elasticity; and so perfect is this property in some solid bodies, that whatever force is applied to them, is so perfectly reciprocated that there is no perceptible power lost by the concussion. Steel, silver and brass, under certain modes of tempering, acquire this property in great perfection, insomuch that a hardened steel ball, being thrown against a well tempered steel spring will be rebounded with the same force and velocity with which it was thrown or projected. By means of this elasticity, the momentum of bodies may be communicated and transferred from one elastic body to another without any perceptible loss of power. If three elastic balls—of ivory for instance—are placed in a row and near together, on a plain level surface, and another ball is rolled against the first, in the direction of the others, the force or momentum of the projected ball will be communicated to the first of the row, which in turn will communicate it to the second, and that to the third, which will be projected with a velocity nearly equal to that of the first ball, leaving the other three at rest. If three elastic balls, A B C, are placed together in the bottom of a basin, or of a curved concave, as represented in the cut at the head of this article, and another ball being placed at D, is permitted to roll down by its own gravity, when it strikes C the ball A will be projected as far as E; then returning will strike B, and the ball D will be projected to F, and returning, A will travel to G; thus the balls A and D will operate to project each other alternately, the momentum of each, in its turn, passing through the balls B and C, both of which remain stationary and unmoved. If two balls are let go at the same time from E and D, they will meet at the place of B, and rebounding, will return to G and F. If a ball is projected against another ball of double its size and at rest, the second will be projected and the first will rebound at the same time, and with nearly equal velocities. If one ball is projected, and immediately after it in the same direction another, and with double the velocity of the first; when they come in contact, the velocity of the first will be doubled, while that of the second will be reduced to the original speed of the first In this example, the second ball having double the velocity, has a quadruple momentum, of which it imparts three-fourths to the first, reserving to itself one fourth, which is equal to the original momentum of the first.

The cause of elasticity, or the philosophical principles of the elasticity of metallic bodies, has never been clearly explained. It is in fact, difficult to comprehend that the particles composing the distended surface of a tempered steel spring, do not remain in actual contact with each oter, Yet there is abundant evidence that such is the fact; although these particles remain so near each other, that the attraction of cohesion is not sensibly diminished. The metals most generally employed for springs, are steel and brass. The former, when properly tempered, will retain its elasticity undiminished for many years, even when kept in constant use, as is the case with the springs of a watch: and this elasticity is not materially affected by any changes of temperature, below 200 degrees of Fahrenheit.—The quantity of force which the elastic surface of a block of tempered steel is capable of exerting, is utterly incalculable. When a tempered steel anvil is struck by a sledge hammer of the same material, the latter rebounds with as great force as that by which the concussion is produced. In this case the exertion of elastic force, during its action, is probably not less than 300,000 lbs. A marksman who should discharge a bullet of tempered steel against the face of an anvil of the same material, would be in danger from the rebound of the ball, even at the distance of 200 yards.

(To be continued.)

GREENLAND.—The whole population of Greenland is less than six thousand souls. There are ten Missionary Stations, six of which belong to the Danish Lutherans, and four to the Moravians.

Illustrations of Chemistry.

(Continued from No. 29.)

MISCELLANEOUS EXPERIMENTS.—Take six pieces of white paper, and stain one of them with a mixture of infusion of nutgalls and a solution of sulphate of iron (copperas): it will be a purple brown. Stain another piece with a mixture of tinctures of turmeric and of litmus: it will be green. Stain another purple with the juice of red cabbage. Stain another piece red with the tincture of litmus and lemon juice. Stain another piece yellow with the tincture of turmeric. Wet the other piece with a solution of sulphate of iron, which will remain white. When dry, dip them all together in a solution of pearlash; the purple brown will be changed to black; the green will be changed to purple; the purple will be changed to green: the red will become blue: the yellow will become red, and the white will be changed to a permanent yellow.

Wash some parts of a sheet of paper, with a solution of sulphate of iron, which will remain white. Wash another part with the tincture of turmeric, and it will be yellow. Stain another part red with a mixture of the juices of red cabbage, and of lemon. Stain another part green with a mixture of turmeric and litmus; and other parts purple, by a mixture of sulphate of iron and infusion of galls. When dry, wash over the whole with a solution of pearlash: the white will be changed to yellow: the yellow to red: the red to green; the green to purple: and the purple to black.

Fill five glasses with the following five transparent and colorless solutions: namely, a solution of sulphate of iron; a solution of sulphate of copper; a solution of nitrate of bismuth; nitro-muriate of cobalt, and a solution of acetate of lead. Then pour into each glass, a few drops of a transparent solution of prussiate of potash. The contents of the first glass will be changed to blue; those of the second to a reddish brown; those of the third to a yellow; the fourth to a green, and the fifth to a milky white. Thus five distinct colors will be produced by the addition of one colorless solution.

Draw on paper the outlines of a picture, faintly with a lead pencil. Teen wet the parts intended to be green, with a solution of muriate of cobalt. Wet the parts intended to be blue, with a solution of sulphate of iron. In the place of yellow, use a solution of nitrate of bismuth,—and for a brown, use a solution of sulphate of copper. When these are dry, rub out the pencil marks, and no picture will be visible, but the paper will remain white. Then pass over the paper a brush or sponge charged with a solution of prussiate of potash, and the picture will instantly appear in full colors.

Stain a piece of paper of a blue color, with a tincture of litmus: when dry, dip it in water in which are a few drops of sulphuric acid, and the paper will be instantly changed to red. Then dip it in a solution of pearlash, and the blue will instantly be restored. In this way the color may be changed and rechanged many times in succession.

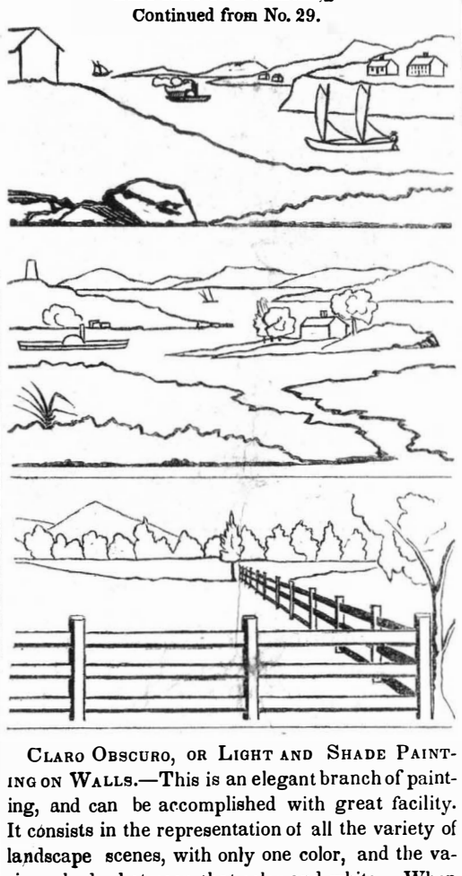
FAMILIAR,—Now, reader, for a little private conversation, just between you and ourselves, on our own affairs. We take it for granted, as a matter of course, that we have your approbation, in some things at least; otherwise you would not be now attending to us. You are probably aware that we commenced the publication of this paper with very little apparent encouragement, other than the common remark that a meshanic's paper was much wanted, there being nothing of the kind published in the United States. You are also probably aware that we had but just got our office in order for business, with printing materials, purniture, books, &c., and were preparing to effect an insurance thereon when a sudden flame from liquid combustibles in the cellar, destroyed all our preparations. Now then, we would say to you softly, that although we have succeeded in continuing the publication, and have got a healthy and increasing circulation of nearly four thousand copies; yet such is the extraordinary expense of procuring drawings, engravings, and materials for *such* a paper, that we are poorly paid for our labor, and have need of your generous influence in increasing our circulation. The proceeds of our advertising page are but trifling; and you will readily appreciate the difference in both the cost of publishing, and in the real value to readers, between a paper three-fourths filled with the most expensive, original, instructive, and useful matter, and an ordinary penny daily, or three penny weekly paper, that is three-fourths filled with (and consequently supported by) advertisements, of no use to the reader, while three-quarters of the other fourth part, are filled with party-political speeches, or a stale story. That being the case you are solicited to take up the argument occasionally, in favor of this paper, and introduce the subject to your associates at every convenient opportunity. Should you thus extend our circulation, you will evidently confer a benefit on the patrons as well as on your humble servant. ED.

KEEP IT BEFORE THE PEOPLE:—that we have on hand and for sale, a few copies of Scribner's Mechanic's Companion, (price $1,12) also a few ever-pointed gold pens (warranted to wear seven years,—price $4,) in heavy and beautifully chased silver cases, with the ever-point pencil and leads:—that connected with this office, are the best facilities for furnishing drawings and specifications of new machinery; also wood-cuts and lithographs at low prices. Also, electro-plating with gold or silver, in the very best style, at short notice, (price for gold-plating watches 50 cents to $2.) Small batteries for sale at 75 cents each.

A LITTLE TOO FAST.—Some of the New Hampshire papers notice as a matter of some importance that we lately remarked that the Whigs of New Hampshire had elected a Governor and a majority of the Legislature. We admit that we anticipated a little, being led to suppose, from the returns then reported, that the election of Governor would have been confirmed by the time our paper would have been circulated. The brief and indifferent statement has proved somewhat premature; and if the *final result* of the election does not correspond with the substance thereof, we will take it all back.

The Art of Painting

Continued from No. 29.



CLARO OBSCURO, OR LIGHT AND SHADE PAINTING ON WALLS.—This is an elegant branch of painting, and can be accomplished with great facility. It consists in the representation of all the variety of landscape scenes, with only one color, and the various shades between that color and white. When black alone is used for the dark shade, the several graduated shades will appear of delicate slate colors, somewhat like delicately tinted ink drawings on paper. But the colors more generally employed are a mixture of black with red, or with chrome yellow: the former, constitutes a dark plumb-color, with shades of purple; the latter a dark green, with shades of green drab, or stone green. Other colors are sometimes employed for variety's sake, where there are many rooms to be painted in the same house; such as burnt umber, Prussian blue, and even chrome yellow, shaded or deepened with gamboge. But in most cases the green or purple is preferable. These colors are prepared, tempered and applied, as directed for painting in full colors; and the designs may, with few exceptions, be the same. In applying the ground-colors, the same order is observed as in full colors. A tint of about the same depth of shade as sky-blue, is applied to the upper walls, and the rising clouds are made with white. The color is changed a shade darker for the land and water of all the several distances. The ground of the fifth distance may be first painted and shaded; afterwards the water and the other distances in succession. An expert artist, however, will paint over the whole ground at once, and apply the shading and heightening of each distance, in season to blend the lights and shades before the ground color becomes set or solid. Four different shades or grades of color are commonly used, which are termed the dark shade, medium shade, light shade, and ground color. The light shade is used for shading the fifth distance highlands: the dark shade for the first, and medium shade for the second distance. The artist will commence at one corner of the room and work to the right, painting the whole space from the horizon lines to the dadoe line, to the distance of four to six feet, and immediately shade and heighten his work thus far, forming mountains, shores, islands, &c., as far as the ground is put on, and then proceed with another section. Of course he must have his design matured and in his mind: and if there appears any break, or imperfect match between the sections, he has only to build a tree or bush over it. So in regard to any defect in the ground painting on any part of the walls, a ready remedy is always found in trees, bushes or clouds. In representing houses, trees, or vessels, on the fourth distance, no darker color than the *light shade* is applied: but the *medium shade* is used on the second and third distances. All trees, rocks, &c., are heightened with white. The tops of large trees, on the first distance, are commenced with *dark shade*, on the shade side, progressed with *medium shade*, and finished with white. We have seen an artist in this branch paint the entire walls of a parlour, with all the several distances, and a variety of fancy scenery, palaces, villages, mills, vessels, &c., and a beautiful set of shade trees on the foreground, and finish the same complete in less than five hours. And as we have before remarked, if there were a competent supply of artists who could accommodate the public with this kind of painting, it would nearly supersede the use of paper-hangings.

A TWELVE-WHEELED CAR.—We have recently observed on the railroad, at Jersey City, a splendid passenger-car, running on twelve wheels. The car is very long and beautifully finished and tastefully painted; and when seen in motion presents an appearance superior to any thing in the car line that we have ever had the pleasure of witnessing.

POTATOES.—Some mischievous boys went into the potatoe-field of a Vermont farmer, one night last summer, and mowed several swarthes through it. At the time of digging the potatoes, it was discovered that most of them were rotten, except where the boys had cut off the tops. These were all sound and in good order.

A GOOD SUGGESTION.—The N. Y. Organ recommends that parents who allow their little children to run at large in the streets, "should have their names and residence written on some part of their clothing." Why not put collars on them at once, especially such as have not clothing enough to write upon?

BERLIN AHEAD OF NEW YORK.—At midnight, on last Christmas eve, all the houses of ill-fame in the city of Berlin, were forever closed, and the frail inmates sent to their relations in the country or placed under guardians.

Arts and Trades.

BROWNING GUN BARRELS.—For Browning gun barrels, take a small quantity of muriatic acid, lay it on for one hour, when it must be washed perfectly clean. Then follows the Browning, the ingredients of which are in proportion as one half oz. of muriatic acid, 1-2 oz. of tincture of iron, 1 oz. sweet spirits of nitre, 1-4 oz. sulphate of copper, 1-2 pint of soft water; the barrels are to remain seven hours in this pickle, (the ends being stopped with corks and beeswax, to prevent its entering inside,) then taken out and cleaned off with a wire brush, (commonly called a guilder's brush—being such as fire-guilders use) and polished with a flannel, after which it is varnished with shellac varnish, mixed with a little burnt terra-de-sienna.

BEST METHOD OF POLISHING STEEL.—For this purpose a wheel must be provided that is perfectly round, and the rim of it covered with deer skin, or buff leather. The diameter of the wheel, for common purposes may be about two feet: but for polishing razors, and some other similar instruments, the wheel should not be more than five or six inches in diameter, and two inches thick. The steel must first be ground as smooth as possible on a common or fine-grained stone; it may then be applied to the polishing wheel, which must be turned with such velocity that the surface or rim may move at the rate of from forty to sixty feet in a second; and the leather must frequently have a powder applied, called crocus of iron, which is prepared by calcining sulphate of iron in a crucible till it becomes a fine red oxide, resembling rust. For ordinary work, the leather may be moistened with olive oil, that it may the better retain the powder; but it will give a more perfect polish if kept dry. If any perfectly plane surface, such as mirrors are to be polished, they must be applied to the sides of a wheel and not to the edge or rim in the manner of other work.

TO PRESERVE THE BRIGHTNESS OF POLISHED STEEL.—Grind an ounce of native plumbago, (such as is used for making lead pencils,) very fine, in a gill of spirits of turpentine; then add an ounce of clean beeswax; apply a gentle heat, till the wax is melted, and continue stirring it till it is nearly cold. Brush over the steel with this composition, and when the spirits have evaporated, rub the work hard with a piece of glove leather, and wipe off nearly all the wax, that the metal may retain its brightness. This may be applied to iron or steel machinery, or other work, and will be found to answer a much better purpose than oil, as it is less liable to collect dust from the atmosphere, and is, in general, much more durable.

FROSTING SILVER.—Powdered charcoal and saltpetre are mixed together in the form of a paste, and laid on thickly over the article to be frosted, which is then to be placed on a charcoal fire, gently blowing it until it ceases to sparkle and fly; then take it out plunge it into a pickle of dilute sulphuric acid, there to remain until perfectly clean. If any soldered joints should be in the article, cover them with scouring-brick dust, made to a paste with water.

FRESHET AT THE EAST.—Recent papers from Bangor, Me., give terrific accounts of a recent freshet on the Penobscot. On the night of Saturday week, about midnight, a mass of ice, fragments of mills and bridges, whole trees, and immense quantities of lumber, came down on the city, sweeping three bridges, and flooding the houses on the front street, including the Post Office, to the second stories. People were passing the streets in boats, and picking up such floating property as they could secure. The damages are immense, but we have heard no estimate thereof.

MEETING OF RAILROADS.—By a recent arrangement three of the principal railroads running from Boston are made to connect in such a manner that the cars of one road may run on to the track of another. It would afford a great accommodation to travellers if all seven of the railroads could be connected; for it is a well-known fact, that travellers dread the jaunt through Boston, from one depot to another, more than any other part of the route between New York, or Albany and Portland.

MUGNER'S WATER-WHEEL.—Those of our readers who know any thing about water-wheels, will see by the illustrations on our first page, that the new "Yankee Turbine" wheel is calculated to work with great power and a very quick motion, in proportion to the water and fall. We have a working model at this office, which may be examined by all who may feel interested in such matters.

RAILROADS AND THE COST THEREOF.—From the returns recently compiled by order of Parliament, it appears that there are in Great Britain 2,069 miles of railway, the average cost of which has been £31,048 (about $149,691) per mile. In France there are 552 miles, which cost $89,733 per mile. In America, 2,688 miles, at a cost of only $23,136 per mile. If these facts do not strongly indicate superior engineering skill, in the United States, we cannot rightly read.

SUCCESSFUL SCIENCE.—A party of working men are engaged with a diving bell, at New Orleans, in recovering the cargo and machinery of the steamboat Dr. Franklin. They had succeeded in raising upwards of $5000 worth, up to the 17th ult., and expected to raise $50,000 worth in a few days, of which they are entitled to one half. It looks like a pretty good job.

BRIGHT POSTMASTERS.—We have recently received several of our papers returned, but without the least sign of a post-mark or indication whereby we could ascertain from whom, or from what post office they were returned. One consolation is, however, that we have sent no papers but what were paid for in advance, and we must suppose that some Postmaster sent them back because they were not called for immediately on their arrival.

Those who take every pointed remark as intended for them, are generally most worthy of them. The reason is, they know better than others what they deserve.

VARIETY

Some waggish editor states that some of the copper speculators on the lakes have discovered a mine of ready made copper bolts, pumps and tea-kettles. Even the inhabitants are copper-colored.

A company of traders have recently arrived at St. Louis, from Santa Fé, having been robbed on the way by the Pawnee Indians. They were left without horses or mules, and compelled to walk.

The ship Moselle lately arrived at Boston, from Havre, with an immensely rich cargo, the duties on which will amount to nearly *two hundred thousand dollars*. The Boston ladies are in commotion.

Gen. Tom Thumb recently attracted such a dense crowd at the Trades' Hall, Aindere, Scotland, that the floors gave way, and precipitated several hundreds into the rooms below. The General escaped.

A Rolling Mill is in operation at Danville, Pa., which turns out about forty tons of railroad iron per day. A few more such establishments would supply the entire demand in this country.

During the preparation of a recent public execution at Chicothe, Ohio, the victim attempted to destroy his own life, but was prevented, lest he should in that way *spoil the sport* of the occasion.

The tannery of Messrs. Pratt and Watson, of Prattsville, Pa., is said to be the largest in the world, and turns out 600,000 sides of leather annually. The building is upwards of 400 feet long.

A white oak log, measuring 62 feet in length and 4 feet 8 inches in diameter, was last week hauled into Rochester, N. Y. It was cut on the Genessee River, and about 5 miles from the city.

Dr. Otis Smith has disappeared suddenly from Stonington, Ct. Just before he left, it was ascertained that he had *four wives* living, besides the one at Stonnington. He has probably gone after another.

Nearly 3000 tons of Maryland manufactured rails of the bridge, or U pattern, 51 lbs. to the yard, are to be laid on the track between Baltimore and Harper's Ferry, during the present year.

It is a fact thoroughly established, that notwithstanding the comparatively high rate of wages in this country, Americans can and *do* build ships, bridges, and railroads cheaper than the Europeans.

The cost of slaves on the coast of Africa, is from $10 to $20 each, and they will sell in Brazil for $300. It is thought that the Pons would have cleared $250,000 if she had not been captured.

The people of Louisville, Ky., have recently been astonished by the appearance, in their market, of fresh codfish. With increased facilities, such things will soon become common in their fish markets.

The Legislature of Virginia has directed that henceforth all *public* executions shall be performed in *private*,—so says an exchange, though it appears rather *bull*-ous.

Ripe strawberries, new potates, green peas, and various other summer fruits, have made their appearance in the Mobile markets. We do not suppose they are very abundant, however.

An intoxicated man, who was furnished with lodgings in the New Orleans calaboose, was found to have in his pockets several gold eagles, forty-four half eagles, besides a lot of silver and bank notes.

The number of square inches of surface in a man of the ordinary height and bulk, is two thousand five hundred; of course he sustains an atmospheric pressure of 37,500 lbs.

Mrs. Martha Taber, who was born in Newport, March 10, 1744, completed one hundred and two years, on Tuesday the 10th ult. She resides with her daughter, Mrs. Knight, Long Wharf, Boston.

The Missisippi valley is likely to supply the world with pig lead. The whole amount to be brought to market this year will probably exceed seventy million pounds.

A National Fair is to be held at Washington city on the 20th of next month. The City Council have granted the use of the Washington City Hall and grounds for that occasion.

There is an axe factory at Collinsville, Conn., in which forty-five men turn out eight hundred axes per day. They are of the best quality, and find a rapid sale.

It is said that there are no less than six persons now at Washington, who expect to be the next President. The number who wish to be has not been estimated.

A grand project is in motion in England for connecting the Mediterranean with the British Channel, by a *ship-railroad* across the territory of France. We have more to say on this subject another time.

There are said to be residing within one mile of the village of Fryeburg, Me., twenty widows, whose husbands were killed by intemperance. The rum days of that place are now past.

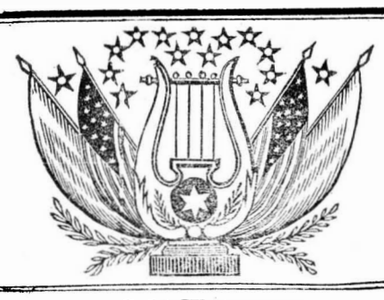
An Express train is established to run between New York and Boston without freight: leaving New York at 7 A. M., via Long Island R. R. Fare three dollars.

A Bangor paper states that the streets of that city are obstructed by blocks of ice, twenty feet high and twenty-five in diameter.

The Legislature of Kentucky has passed a law taxing pistols two dollars a pair, and revolving pistols two dollars each. They will be apt to go off.

It is estimated that there are in the United States about $250,000,000 in specie—being about $16 per head for every man, woman, and child in the whole country.

© 1846 SCIENTIFIC AMERICAN, INC.



Cold Water.

AIR—*Auld Lang Sine.*

[C ?—

Shall e'er cold water be forgot
When we sit down to dine?
O no, my friends, for is it not
Poured out by hands divine?
Poured out by hands divine, my friends,
Poured out by hands divine;
From springs and wells it gushes forth,
Poured out by hands divine.

Cold water, too, (tho' wonderful,
'Tis not less true, again)—
The weakest of all earthly drinks
Doth make the strongest men;
Doth make the strongest men, my friends,
Doth make the strongest men:
Then let us take that weakest drink,
And grow the strongest men.

And as the bells of tulips turn
To drink the drops that fell
From summer clouds—then why should not
The two lips of a belle?
The two lips of a belle, my friends,
The two lips of a belle;
What sweetens more than water pure,
The two lips of a belle?

The sturdy oak full many a cup
Doth hold up to the sky,
To catch the rain, then drinks it up,
And thus the oak *gets high:*
'Tis thus the oak gets high, my friends,
'Tis thus the oak gets high,
By having water in its cups;
Then why not you and I?

Then let cold water armies give
Their banner to the air;
So shall the boys like oaks be strong,
The girls like tulips fair;
The girls like tulips fair, my friends,
The girls like tulips fair;
The boys shall grow like sturdy oaks,
The girls like tulips fair.

Temperance Song.

AIR,—*Bruce's Address.*

[C ? ?—

Friends of Freedom! swell the song,
Young and old the strain prolong,
Make the Temperance army strong;
On to victory!
Lift your banners, let them wave,
Onward march a world to save,
Who would fill a drunkard's grave,
Bear his infamy.

Shrink not when the foe appears,
Spurn the coward's guilty fears;
Hear the shrieks, behold the tears
Of ruined families.
Raise the cry in every spot,
Touch not, taste not, handle not!
Who would be a drunkard sot?
Worst of miseries!

Give the aching bosom rest,
Carry joy to every breast,
Make the wretched drunkard blest,
Living soberly.
Raise the glorious watchward high,
Touch not, taste not! till you die
Let the echo reach the sky,
Earth keep Jubilee!

God of mercy! hear us plead,
For thy help we intercede;
See how many bosoms bleed!
Heal them speedily.
Hasten, Lord, the happy day,
When, beneath thy gentle ray,
Temperance all the world shall sway—
Reign triumphantly.

Original.

Lines,

On the death of J. J. BUTLER, an eminent artist of this city, who died recently in Matanzas, (W. I.)

Weep not for him that dieth,
For he sleeps and is at rest,
And the couch whereon he lieth
Is the green earth's quiet breast.
He sleep's in Jesus,—blessed sleep!
From which none ever wake to weep:
A calm and undisturb'd repose
Unbroken by the last of foes.

Weep not for him that dieth,
For his struggling soul is free,
And the world from which it flieth
Is a world of misery.
On southern plains or Lapland snows
Believers find the same repose;
Asleep in Jesus far from thee,
Thy kindred, and the grave may be

H. A. B . . . . .

QUAINT.—Mr. Wockhagerikdewegbitnigensterben fell down stairs the other day, and broke his name into three pieces.—*Boston Post.*

And the editor of the Post spoiled a jacknife and two pair of scissors in putting the name together again.—*Boston Mail.*

The fellow must have been rather *Green* to attempt such a crooked job.

A FIREMAN'S TOAST.—The Ladies—The only incendiaries who kindle a flame which water will not put out.

Selected Articles.

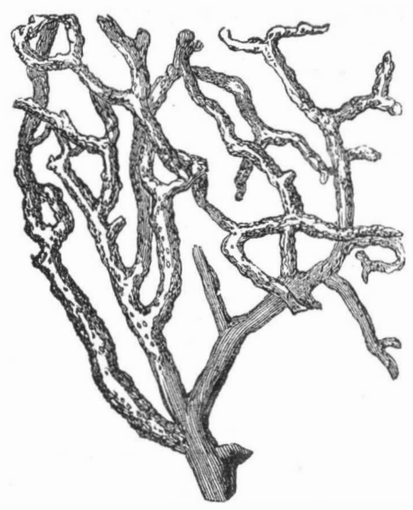
ORIGIN OF ENGRAVING.—The origin of engraving on copper is ascribed by Vasari to Massa Finiguerra, a celebrated *niellatore* of the fifteenth century; but, before telling you how he arrived at this invention, I will describe the art from which it rose. Niello, or the inlaying of metals, was employed in very early times, and seems to be the same as the *marqueterie* of the French, and the Eastern *lavaro da maschino,* which I have before mentioned. The process by which the beautiful works we have lately seen were executed, was as follows:—The subject being cut out with a chisel on a plate of silver, the interstices were filled with a mixture of silver and lead, called, from its dark color, *nigellum,* whence the Italian word *niello* was derived. The contrast of this dark substance with the shining whiteness of the ground produced the effect of a beautiful relievo. It was chiefly used for tables, cabinets, the covers of missals, and sometimes for the hilts of swords. Massa Finiguerra was in the habit of taking an impression of his works to prove them, before he filled the cavities with niello. This he effected by pressing the frame thus prepared on soft earth; a reversed copy was of course given, as the parts before sunk now stood out in relief. He then covered it with liquid sulphur and lamp-black, and another impression was taken. He also took proofs of his works by coloring them over with a similar preparation, and then, placing moistened paper on this, passing a smooth round roller over it, which gave to the impressions, Vassari says, "Not only the appearance of being stamped, but made them look as designed with the pen." Only two or three of Finiguerra's proofs remain, but many still exist of that period. The transition from this to the next step in the art of engraving was an easy one. Copper was substituted for the more expensive material which led to the discovery, and the attention of artists was now turned to the new effect to be produced; and greater accuracy and delicacy were introduced into the execution of the frames intended solely for engravings.

THE STEAMBOAT OREGON.—The Oregon is in length 330 feet by 35 feet width of beam, and of 1,000 tons measurement, having berth accommodations for abont 600 passengers, without the necessity of cots or extra beds. The propelling power consists of an engine of 1,100 horse power, with a 72 inch cylinder and 11 feet stroke. Entering upon the main deck, the enclosed space, from the Ladies' Cabin forward, forms a promenade 200 feet long. The massive engine is in the centre, though occupying but a small space, and four or five side-parlors, fitted up with ten or twelve berths each, open out over the guards, as also a smoking room, denominated the "Exchange," and the wash-room and barber's shop, which is fitted up with marble slab, Croton water, wash-bowls, etc. Passing into the main-cabin forward, a continuous line of berth extends from end to end of the boat, over 300 feet, and numbering some 200 berths. This includes the after-cabin, which is connected by an ample passageway with the forward one; 500 yards of expensive carpeting cover the floors in these cabins, and each berth is fitted with Mackinaw blankets and Marseilles quilts, each article having the name of the steamer worked in it; a 30 pound mattrass, and also bolsters and pillows, with linen of the finest quality. The curtains are of satin de laine, of the richest tints, with embroidered inner curtains. Of the cost of all this magnificent splendor, it is hard to make a fair estimate. If we say $30,000 for the furniture and fittings, it is by no means exceeding the mark, and though it appears to be a large sum, the reckoning of a few items will be a convincing evidence of its truth. For instance, the chairs in the ladies' cabin cost $20 each; the sofas $200 each; one pair of mechanical lamps, in porcelain, with shades, $225; the centre tables $80 each; the fringe at the ceiling $12 per yard; the draw curtain complete, $500; each state-room set of fittings, $250; the castors, waiters, &c., $50 to $100 each; the carpets $1,800 in all, and so on to the end of the chapter. Nothing is superficial, as is generally the case, but all is real. The cost of the boat itself was about $130,000.

A DANGEROUS SECRET.—In a former letter I mentioned the improvement in art, which has been effected by transferring engravings, etc., to plates of zinc, and which is called glyptography. A still more wonderful effect, resembling this, has lately been produced in Prussia, the process of which, however, is still a secret. The attention of the King of Prussia, and his ministers and councillors has lately been called to it. An inhabitant of Berlin is represented as having discovered a method of producing, in the most perfect, easy and rapid manner, exact fac-similies of documents and writings of every kind, bank notes, and, in short, of every paper document, whether written or printed. The most surprising part of the thing is, that the inventor requires to execute the copy, no more time than an ordinary printer would take to make an impression with a common press. One of the public functionaries of the government gave the inventor an old document to copy, which seemed, from its age and worn condition, incapable of being imitated. The artist took it to his *atelier,* and in a few minutes returned with fifty copies of it. The imitation was so perfect, that it filled the monarch and his counsel with astonishment, amounting to stupifaction and even fright! At the foot of this document were affixed a great number of signatures, which it had received at various epochs more or less remote, all very old, and written in different inks. The copies gave all these with the most exact precision. Several Treasury notes of the highest value were then given to the inventor to be copied. He took them, as before, and returned after some minutes, having mixed the originals with the copies, and invited the most competent judges of such documents to select the originals from the collection. It was impossible to do it! The government are negotiating with the inventor for his secret.—*Rochester Rep.*

GALVANISM—An article on this subject is unavoidably deferred till next week.

Formation of Coral.



Among the multitude of the wonders of Nature, the formation of large bodies of coral is not the least. Coral is an insect, or animal, which lives in the ocean; it is also the shell in which the animal lives. We commonly call the shell coral. It is generally said that coral is made by insects, but this is not strictly true, as it is more correctly supposed that the coral is only the shell in which the animal or insect lives, and that it grows as all animal shells grow, and is not formed as the bee forms the honeycomb. Coral is formed in the ocean, and becomes rocks, reefs, and even vast islands. Between the western coast of America and New Holland, the whole sea is full of coral rocks, reefs, and islands. There is one coral reef which extends 350 miles, with several islands of the same, the whole forming a continuous line of one thousand miles varying from twenty to sixty miles in breadth.—These are constantly growing larger, and may become covered with vegetation, and be inhabited by men and animals. This process appears the more wonderful, on account of the great ordinary depth of water, which is from 1000 to 1,500 feet, where some of these coral formations are found. There are several different kinds of coral, some of which closely resemble the branches of a tree, or other vegetable production, as represented in the cut at the head of this article. Some kinds are wrought into various ornaments, though in general it may be considered an article of little value, except as a natural curiosity.

GIRLS CHANGES OF MARRIAGE.—The following curious statement by Dr. Granville, is taken from an English paper. It is drawn from the registered cases of 876 women, and is derived from their answers as to the age at which they were respectively married. Of 876 females, were married—

3 at 13	113 at 20	28 at 27	5 at 34
12 at 14	86 at 21	22 at 28	2 at 35
16 at 15	85 at 22	17 at 28	0 at 36
43 at 16	50 at 23	9 at 30	2 at 37
45 at 17	58 at 24	7 at 31	0 at 38
66 at 18	36 at 25	5 at 32	1 at 36
125 at 19	25 at 26	7 at 33	0 at 40

This scale of chances may not properly apply to American girls. In England a rich father looks out early for suitable mates for his daughters, while the poorer classes of men usually marry young or never; not feeling bound to that precise standard of fashion, which requires an American young man to work hard ten to fifteen years, in order to procure the means of providing fashionable furniture, and living in fashionable style. That makes a difference.

APPROPRIATIONS.—The Harbor and River Bill, which lately passed the House of Representatives appropriates $4,378,450; of which Hudson River improvements are to get $75,000, Newark Bay $15,000, Bridgeport $15,000, Stamford $20,000, Delaware $75,000, Lake Champlain $39,000, Lake Ontario $90,000, Lake Erie $194,000, Lake Michigan $194,000, Western Rivers $320,000, Red River raft $80,000, Atlantic Harbor works $20,000, Boston Harbor $40,000, Providence do. $5,000, Great Wood Hole do. $4,450, Oak Orchard do. $7,000, New Castle do. $15,000, Port Penn do. $5.000, Baltimore do. $6,000, Havre de Grace $20,000, Savannah $50,000, St. Lonis $65,000.

ANOTHER ELECTRIC GIRL.—The French papers are exciting wonder by an account of a young Norman girl, who is so completely charged with electricity, that all bodies with which she comes in contact, receive a repulsive shock, sufficient in many instances to throw them to some distance. This statement purports to be on the authority of M. Arago. Perhaps Mons. will make such improvements in the sciences, as to communicate the power of "repulsion" to all young ladies who need such a guard.

A VALIANT LADY.—The Belmont Chronicle reports that a man painted black, and otherwise disguised, attempted to rob a woman near Beallsville O., of $75, which she had recently received for a horse. She handed him some bank notes, and while he was counting the money to see whether he had got the whole amount, she struck him over the head with a poker, which broke his scull and killed him on the spot.

VERY NEAR THE FACT.—"I have found (says a certain writer) that the men who are really most fond of the society of ladies, who cherish for them a high respect, nay, reverence, are seldom the most popular with the sex. Men of more assurance, whose tongues are lightly hung, who make words supply the place of ideas, and place compliments in the room of sentiments, are the favorites."—He might have added, that those men who are noted as decided favorites with even the upper class of ladies, may generally be proved to be the most unprincipled libertines.

THE SPITFIRE.—The schooner Spitfire, that rakish little Baltimore craft which was captured as a slaver on the coast of Africa, and condemned in Boston, is now in New Orleans, ready, the Delta says, for any honest business, or to sail against any thing in those waters.

Jumble.

Some of the English papers admit that Canada must eventually be annexed to the United States.——Arrangements are in progress for erecting a large cotton factory in Alexandria, D. C.——The "Liberia Advocate," is the title of a new paper just started in St. Louis, Mo,——20,869,000 pairs of boots and shoes were made in Massachusetts during the last year: of 46,000 persons employed in the business, 18,000 are females.——Young Mr. Audubon, the Naturalist has returned from Texas to New Orleans.——The Telegraph between Philadelphia and Wilmington is ready for operation. An India-rubber manufacturing company has been incorporated at New Brunswick, N. J.——It is estimated that America could support 930,000,000 of inhabitants without being so densely populated as Europe.——Eight boats laden with five hundred tons of iron, were sunk in the Alleghany river last week. The metal will be recovered when the river falls.——A newly invented Printing Press is announced in Greenfield.——The Salem Observer states that a young colored lad by the name of Lawrence, at the recent examination of the English High School, obtained the highest number of marks in his class.——"Keeping Lent", is defined as being the habit prevalent with some people, of *keeping* whatever is *lent* them.——An old whig gentleman objected to ride in the railroad cars because they were drawn by a *loco*-motive.——Eighteen trains of passenger cars per day now run between Boston and Salem, Mass.——The largest Merchant ship in Boston is the Sunbeam, the measurement of which is 842 tons.——The sources of smiles and tears lie near, and help to refine one another.——Milwaukie, Wisconsin, is to be made a city. It has a population of ten thousand.——A down-east Yankee very cutely says: "Tho' the men have the reins, the women tell 'em which way they must drive.——The Father of Sir Robert Peel was a cotton manufacturer, and at his death left property to the amount of $12,000,000.

MAGNETIC TELEGRAPH.—A contract was concluded last week with Mr. Cornell, by the owners of the Albany and New-York Magnetic Telegraph Co., to build that line immediately. It is supposed that it will be in operation next summer. Mr. C. Livingston has a contract to have a line built from Troy to Saratoga in time for the fashionable season. The Boston and New-York line, it is believed will be in working order by the 1st of May. The Philadelphia line is ready to Jersey City, with the exception of crossing the river at Newark, arrangements for which will be perfected this week. This road is doing a large business. The posts we understand are all up between Albany and Buffalo, and the wire going on. This line will soon be ready. By the 1st prox. there will undoubtedly be telegraph communication complete between Boston and Washington. The Boston line is soon to be extended to Portland.—*Tribune.*

REMARKABLE AUTOMATON.—The flute-player of Vaucanson was exhibited in Paris, in 1738. It played on the flute exactly in the same manner as a living performer, and commanded three octaves, the fullest scale of the instrument. Its height was nearly six feet. In 1741, Vaucanson produced a flageolet player, which played the flageolet with the left hand, while it beat the tamborine with the right. He also produced a duck, which dabbled in the water, swam, drank, and quacked, like a real duck. This artificial duck has been lately repaired, and is being exhibited in Paris. A correspondent of the Boston Atlas says, "Nothing can be more authentic than the accounts of the automaton we are about to describe. We have ourselves been an eye witness, and could have sworn that the duck was a living animal. In the space of ten minutes we saw it drink, eat, dabble in the water, stretch its wings, shake its feathers, and do a number of things, all in a manner peculiar to that bird. This duck seemed to live and to move—the illusion was complete."

CHEAP AND EXCELLENT DAGUERREOTYPES.—We have recently seen several excellent daguerreotype portraits, taken in colors, by Messrs. Rogers & Seeley, at their rooms, on the S. E. corner of Broadway and Fulton street; and being familiarly acquainted with the originals, we feel in a measure competent to judge on the merits of the portraits, and have no hesitation in recommending these artists to the patronage of the public. Their price is only $1,50 including handsome cases; and as they in all cases warrant their work to be satisfactory, there can be no risk in giving them a chance.

A NEW MODE OF DUNNING.—A dissenting preacher in Norfolk gave notice, that if tradesmen had any difficulty in getting debts paid in his congregation, and would deliver the bills to him, he would present them to the persons before the congregation, and know the reason why they were not discharged. We think much good might be done in this way by the clergy in this section, if they would undertake collections on a fair per centage.

A PATENT CASE.—Woodworth, the inventor of the original cylindrical Planing Machine, has procured a renewal of his patent, and some of those who had purchased rights of him, claimed a share in the benefit of the extension. But the U. S. Supreme Court has decided in favor of Woodworth, and against the grantees of rights given under the original patent.

IMPROVED MODE OF "POPPING THE QUESTION."—A bashful lover, a short time since, not having the courage requisite for proposing direct, took up the young lady's cat, and said, "pussy, may I have your mistress?" It was answered by the lady, who said, "say yes, pussy."

THE YOUTH'S CABINET.—The April number of this excellent monthly is received, containing, as usual, an interesting variety for the amusement and instruction of youth;—published by D. A. Woodworth, 135 Nassa street, N.Y. Terms $1 per annum.

A cedar on Mount Lebanon is two thousand one hundred and twenty years old; a chestnut on Mount Etna, (Sicily) two thousand six hundred years old

"I pray not for the world, but for them which thou hast given me."—John xvii. 9.

These words were a sentence of the prayer of the Son of God, in the presence of his disciples immediately previous to his arrest, mock trial, and crucifixion. In this prayer is manifested in an extraordinary manner, the disposition of God towards men. The disciples well understood who were meant by "those whom thou hast given me." Their "Master" had often spoken of "the world" in former conversations; as he says to the pharisees, "ye are of the world," &c.: and again: "If ye were of the world the world would love its own;" John xv. 19,—and a variety of other passages, clearly show that "the world" here mentioned, is no other than the mass of worldly-minded people, who refuse or neglect to obey the commandments of Christ. And such are the people of whom the Son of God—the only Savior,—says, "I pray not for them." In view of this point, the question naturally arises, whether it is proper for christian believers to pray for those for whom the Savior would not pray. It may be answered that one of the apostles enjoins that "supplication and prayers be made for all men:" this is admitted; but the apostle in some measure qualifies the injunction by giving a reason why such prayers should be offered, viz., that the saints might live quiet and peaceable; but no intimation is any where given to authorize prayer for the final salvation of all men. Relative to this subject, a glaring and rather distressing inconsistency is practised by some popular denominations of christians, who, while they profess to believe that God is willing and even desirous that all should repent and be saved, they also manifest the opinion that He is abundantly able to convert and save each and every human being; and loudly and earnestly pray Him to convict, convert, and save the wicked rebels who ask no favors for themselves, but revile those who do; thus affecting to place their own sympathies above those of the divine Savior. But this practice is widely different from his example, and consequently, of doubtful propriety. Believers are admonished to pray for their enemies, and those that despitefully use them; and this was obeyed by the martyr Stephen, when he prayed: "lay not this sin to their charge:" but there still appears no authority for praying for the arbitrary conversion of opposing rebels. Believers should make exertions to convince and persuade sinners to repent, (which signifies to obey the gospel:) but should repel the idea that God is not willing to do all that is consistent with his divine rectitude, to bring men to repentance and eventual salvation. But all should unite in the prayer of the Savior for all those who do obey (sometimes termed "all men,") that they may be sanctified *through the truth.* But the prayer that God will convert and save those who obstinately oppose his divine truth, is without scripture authority, and is not consistent with the principles of the religion of the gospel.

A Thousand Per Cent.

I know a woman who, a few years ago, was abandoned by all her relations on account of her religion. She became a Methodist. Living in a large city, she was obliged to work hard for small wages to support life. In the midst of winter, she went one morning to her employer to ask for work, when he told her in an angry tone and manner, that he would not give her any more till he had sold off al his stock; and tauntingly ordered her to go home and pray for rain as Elijah did, and, said he the Lord will send you work. Her look conveyed to him a reproof, but she spake not a word. On the evening of the same day there was a meeting of the Bible Society, in the neighborhood, and our sister desired to be there; but having only one sixpence in the world, she felt unwilling to occupy a seat and give nothing for the cause. At last she resolved to go. After the speakers had all got through except one, she felt her heart warmed with the love of God. The last speaker said he should not like to sleep in the same room with the man who would not give his last sixpence to such a cause as the Bible Society. This was too much for our sister, she could retain her *last sixpence* no longer; the collection was made and she parted with all, trusting in God, and rejoicing in his love. She returned to her humble dwelling place having but a very little food left, and having neither money nor work, friends nor credit, in the midst of winter. During the day the mind of her hardened and unfeeling employer had been so wrought on that he could not retire to bed without sending her a large quantity of work, and a promise of all she could do in future. Our sister has ever since reckoned that *the Bank of Heaven pays a Thousand per Cent.—True Wesleyan.*

TO THE POINT.—He is a choice spirit who has much to do with Christ, who drinks deep into his love, whose faith is never staggered, and who knows no higher aim than to honor his Savior. But he is a useless soul who forgets his God, and seeks for wealth only—who lives without living, and dies to die eternally. How few there are of the former character! Of the latter how many! Reader—*which are you?—Religious Rec.*

THE CHURCHES OF BABYLON.—The Lowell Patriot, alluding to the recent magnificent dedication of the splendid new Grace Church, in this city, appropriately remarks that the "splendid" system of religion is fast swallowing up that taught by him who was "born in a manger."

ADMONITION OF WESLEY'S MOTHER.—Whatever weakens your reason, impairs the tenderness of your conscience, obscures your sense of God, or takes off the relish of spiritual things—in short, whatever increases the authority of your body over your mind—that thing is *sin* to you, however innocent it may be in itself.

© 1846 SCIENTIFIC AMERICAN, INC.

General Agents.

Colon & Adriance, 28, 29, 30, 31 Arcade, Philadelphia.
Hotchkiss & Co., 13 Court street, Boston.
R. K. Porter, New York City.

Local Agents.

Maine.—Shipley W. Ricker, South Berwick; C. D. Bearce, Portland.
New Hampshire.—J. A. Fay, Keene; Wm. O. Ruggles, Hanover; C. M. Smith, Manchester; J. Buffam, Nashua; D. L. Norris, Dover.
Vermont.—Thomas Boynton, Windsor.
Massachusetts.—J. W. Davis, Lowell; S. Thompson, Worcester; H. P. Barnes, Pittsfield; Benj. Perry, Salem; W. P. Seaver, Taunton; P.W. Tenny, Newburyport; Otis Cary, Foxboro; W. Robinson & Co., New Bedford; W. S. Barker, Medford.
Rhode Island.—Daniel Cobb, Providence; H. J. Pitman, Bristol.
Connecticut.—Peter Cook, Hartford; E. Downes, New Haven; William Woodward, Middletown; S. Jones, Colchester; J. Hunter, Thompsonville; H. S. Snow, Meriden; Safford & Parks, Norwich; O. P. Butler, Northfield.
New York.—T. Dickinson, Newark; T. S. Hawks, Buffalo; G. W. Hildreth, Lockport; William M. Beauchamp, Skaneatles; M. Nevin, 158 Fulton street, Brooklyn; M. S. Leonard, Oswego.
New Jersey.—J.L. Agens, No. 1 Commerce street, Newark; J. M. Francis, Hoboken; Alfred Walling, Keyport; Lees Garside, Corner of Main and Market sts, Paterson.
Maryland.—S. Sands, 122 Baltimore st., Baltimore.
District of Columbia.—W. H. Ward, Washington.
Georgia.—Chas. O'Neal, Darien.
Florida.—Major J. Nathans, Quincy.
Illinois.—G. W. Arnold, Peru.
Ohio.—Col. A. P. Chesley, Huron.
Wisconsin Territory.—Norris Hubbard, Southport.

Travelling Agents.

Clark Selleck. J. A. Lattin. Stephen J. Payne.

Patent Agency at Washington, D. C.

ZENAS C. ROBBINS,

Mechanical Engineer and Agent for procuring PATENTS,

Will prepare the necessary Drawings and papers for applicants for patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the patent laws and decisions in the United States or Europe. Persons at a distance desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward (post paid, enclosing a fee of five dollars,) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, will be promptly communicated.

All letters on business *must be* post paid, and contain a suitable fee, where a written opinion is required.

Office on F street, opposite the Patent Office.

He has the honor of referring, by permission, to Hon. Edmund Burke, Commissioner of Patents; Hon. H. L. Ellsworth, late ditto: Judge Cranch, Washington, D.C.; Hon. R. Choate, Massachusetts, U. S. Senator; Capt. H. M. Shreve, Missouri; H. Knowles, Machinist, Patent Office. april 2.

Levi Chapman.

No. 102 William Street, New York.

Manufacturer of the

CELEBRATED MAGIC RAZOR STROP

of four sides.

Also, Pocket Books, Wallets, &c.

On the most extensive scale.

L. C.'s facilities for manufacturing Pocket Books, or Wallets, for the supply of those wholesale dealers who buy to sell again by the gross or dozen, are unequalled, he having employed for the last ten years from 50 to 270 workmen. His present well regulated system of *division of labor,* enables him to supply these articles at a very great reduction, at least one third less than former prices.

Strops retailed at from 50 cents to $1,00 each, varying only in outward finish and size—warranted to please or the money returned. jan22.

Book for Mechanics.

THE ENGINEER'S AND MECHANIC'S COMPANION.

Comprising Weights, Measures, Mensuration of superfices and solids, tables of squares and cubes,—square and cube roots, circumference, and areas of circles, the mechanical powers, centres of gravity, gravitation of bodies; strength, weight, and crush of materials; waterwheels; hydrostatics, hydraulics, statics, centres of percussion and giration; friction, heat, tables of weight and metals; pipes, scantling, and interest; steam and the steam engine.

By J. M. SCRIBNER, A. M.

Recently published, and for sale by
HUNTINGTON & SAVAGE,
216 Pearl st., price $1,12 to $1,50.
jny1

J. CHAPMAN'S

Gentlemen's Furnishing Store,

No. 354 Pearl Street,
One door from Franklin Square, New York.

Stocks, Cravats, ready made linen, hosiery, gloves; and a variety of other articles, of the best quality, constantly on hand, and for sale at the lowest prices. jny 29

GALVANIC APPARATUS.

DANIEL DAVIS, Jr., 428 Washington street, Boston, manufactures all the variety of philosophical apparatus, connected with Magnetism, Galvanism, Electro-magnetism, and Magneto Electricity. He has constantly on hand a variety of Electro-magnetic machines, permanent magnets, Galvanic Batteries, &c. For sale on the most liberal terms. nov18

ELEGANT DAGUERRIAN

Portraits,

Furnished in neat morocco cases for
ONE DOLLAR,
By H. E. INSLEY, 122 and 124 Broadway.

FREE EXHIBITION,

Persons are invited to call and see their own

PORTRAITS,

IN DAGUERREOTYPE,
to purchase or not, at their pleasure, at
A. SEALEY & ROGER'S
Daguerrean Room, Southeast corner of Broadway and Fulton street,
(Entrance 156 Fulton,) New York.

Plain Portraits, including morocco case, $1 00; colored do. $1 50. feb4

MARSHALL'S TROY SHIRT DEPOT.

AT this Establishment may be seen the largest assortment of Shirts, Bosoms, Collars, &c., to be found in the city—all of our own manufacture, in Troy, which we offer to dealers and citizens in general, 25 per cent. below city prices. The above goods have won too high praise to need any puffing from us. It is sufficient to say that we are now patronized by all the principal dealers in the city, and the above goods have been generally approved of throughout the country, for being well made and for cheapness.

Just received—Linen bosom shirts with linen collars and wristbands—warranted—at 62 cents, 75 cents, 87 cents, $1, $1,25, $1,50, $1,75, $2. Also linen collars at 4 cents, 6 cents, 12 1-2 cents, 18 3-4 cents, and 25 cents.

MARSHALL'S, 90 Chatham st., N.Y.

N.B.—Northern, Southern, Western and Eastern Merchants, who are making their purchases at the wholesale dry goods houses, will do well to inquire for goods of our manufacture, as it is sometimes the case, that other kinds are kept by them.

Plumbe National Daguerrian Gallery,

AND PHOTOGRAPHIC DEPOT,

251 *Broadway, corner of Murray street, New York,*
(over Tenney's Jewelry store,)

Awarded the Medal, four first premiums and two "highest honors," at the exhibition at Boston, New York, and Philadelphia, respectively, the best pictures and apparatus ever exhibited.

Price of these superb photographs reduced to that of ordinary ones at other places, so that no one need now sit for an ordinary likeness on the score of economy,—taken in any weather.

Plumbe's premium and German Cameras, Instructions, plates, cases, &c. &c., forwarded to any desired point at lower rates than by ony other manufacturer.

Wanted—two or three skilful operators. Apply as above. jny29

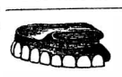
CUMMINGTON QUINEBAUG SCYTHE STONES.

From the celebrated Robbins' Ledge.

MANUFACTURED by J. S. STAFFORD & CO., Cummington, Mass.—The unprecedented sale of the Cummington Quinebaug Seythe-stones, during two years, has fully established their claim to superiority over all other stones now in use, and renders unnecessary any recommendation from the proprietors.

☞ A continuance of public patronage is respectfully solicited. All orders addressed to J. S. Safford, or Jacob Morse, (sole proprietors,) or Stephen Morse, Agent, Cummington, Mass., will meet with prompt attention.

For sale at all the principal hardware stores. nov9



TEETH

THE cheapest office in this city for Dental operations is Dr. Brown's, 280 1-2 Broadway, between Reade and Chambers st.

Natural and mineral teeth inserted from $1 to 3 50
Decayed teeth filled with white cement,
and warranted useful for mastication, 50
Toothache cured effectually without pain, 50
Teeth extracted with less than half the usual pain 50

Dr. BROWN,
280 1-2 Broadway, 3 doors above Chambers, next to Stewart' & Co.'s new store.

References can be had from several hundred families, also to the medical faculty of the city. nov18

Valuable Books,

Just Published
By EDWARD WALKER, 114 Fulton st.

Romanism vs. the Bible.

"It is our belief that ten thousand copies will be sold in less than six months."—Knickerbocker, Sep., 1845.

DOWLINGS HISTORY OF ROMANISM.

With 52 engravings, in various bindings.

In the short space of six months, this beautiful and popular work has reached its tenth edition—this is altogether unparalleled in the history of American book-making. Every American Protestant should furnish himself with a copy of this faithful history of Romanism.—Price $3.

IMPORTANT NATIONAL WORK.

THE STATESMAN'S MANUAL.

Just published, a new and enlarged edition of
Presidents' Messages,
in two handsome volumes, 8vo.;—the whole collected from official documents, by E. WILLIAMS, Esq.

CONTENTS:

1. The Addresses and Messages of the Presidents of the United States, from Washington to Polk; with a copious analytical Index to the same, of subjects, names and dates.
2. An account of the Inauguration of each President, and a brief notice of the principal political events of his administration.
3. A Biographical sketch of each President.
4. Declaration of Independence.
5. Articles of Confederation with a brief history of the events and circumstances which led to the union of the States, and the formation of the Constitution.
6. Constitution of the United States, with notes and references.
7. A synopsis of the Constitutions of the several states.
8. Chronological Tables of Historical events in the United States.
9. Tables of Members of the Cabinets of the various administrations, Ministers to Foreign Countries, and other principal public officers.
10. Statistical tables of Commerce and population;
11. A Complete Index, or analytical table of contents to the whole work. Price $5.

COMPANION TO JOHN BUNYAN.

The fourth edition of Dr. Cheever's Lectures on Pilgrim's Progress, and the life and times of John Bunyan, illustrated with beautiful steel engravings.

WONDERS OF THE WORLD.

Just published, the *fourteenth edition* of this truly popular work,—price $2,50.

KNOWLEDGE IS POWER.

Just published, the *tenth* edition of the "People's Guide to Knowledge:"—price $2 50.

THE MISSIONARY MEMORIAL—Price $2.

Pictorial History of the Revolution,
with numerous plates, extra gilt,—price $2.

NEAT AND ELEGANT

Book-binding,

E. WALKER, 114 Fulton st.,

Respectfully informs his friends, and the public in general, that he has made extensive preparations for binding the "Harpers' Illuminated Bible," in beautiful and costly pictorial bindings.

Persons collecting six copies of this Bible, and forwarding them to the subscriber, with directions, will receive the binding of one copy gratis.

Wanted, in every town and village in the United States, responsible men to procure subscribers, and engage in the sale of the above works, to whom a very liberal per centage will be allowed.—address E. WALKER, 114 Fulton st.

*** Country newspapers, copying the whole of this advertisement, and giving it six inside insertions, shall be entitled to a copy of any one of the above works,—all who may comply with the above terms, will please send copy of the paper, each time of insertion, to the publisher, E. WALKER, 114 Fulton st., New York.

Feb11tf.

A. G. Bagley's Celebrated Improved
EVER POINTED GOLD PEN.

THIS Pen received the highest premium at the last Fair of the American Institute, and has been pronounced by the first teachers of Penmanship in the country to be infinitely superior to any Gold Pen ever before introduced to the American public. The lasting properties of this Pen are undoubted, owing to the total absence of corrosibility from any of the inks in use, and the peculiar shade of the nibs, (which was first introduced by Bagley, (makes it more pleasant to use, renders it less liable to damage, more easy to repair, and prevents the necessity of the great care that other articles of the kind require.

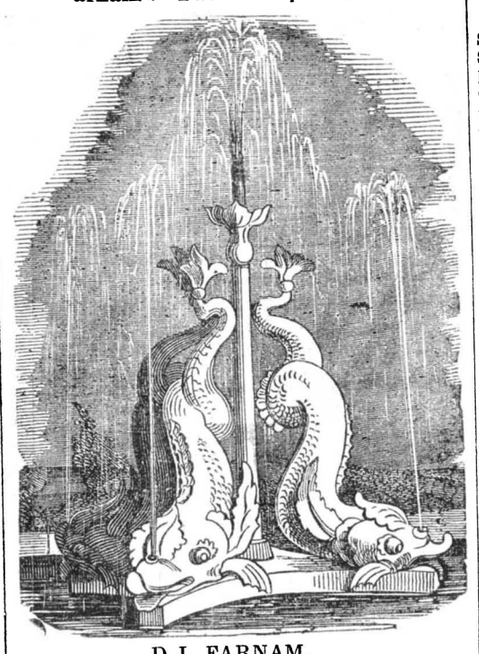
MANUFACTORY, 189 Broadway, N. Y. nov9.

Engraving on Wood.

THE subscriber is prepared to execute
WOOD ENGRAVINGS
of Machinery, Landscapes, Plans of every description for newspapers, book embellishments, &c. &c., in good style, and at short notice, at 89 Nassau street, in the
SUN BUILDINGS,
and adjoining the office of the Scientific American.
march 26. A. R. HAIGHT.

---

arnam's Patent Hydraulics.



D. L. FARNAM,
(29 FULTON STREET, N. Y.)

MANUFACTURES Cast Iron Fountains in great variety, at prices from Five to Five Thousand Dollars;—also Lift and Force Pumps, calculated to raise from ten to six thousand gallons per minute, and fitted for every variety of purpose for which they can be required. Fire Engines, of superior powers; Leather Hose, Wind Mills, Water Wheels, Horse Powers, Lead Pipe, Air Pumps, Brass Work, &c. &c.

D. L. F. has pulished a work on the subject of Hydraulic apparatus, Fountains, &c., which contains much useful and practical information, and among others 18 cuts of Fountains, with their prices;—the book can be forwarded by mail to those requiring information on the above subjects. nov9

Patent Agency

DRAWINGS and specifications of machines, with other papers requisite for procuring Patents of New Inventions, will be furnished at short notice, at the office of the Scientific American. No charge will be made for advice or instructions on the subject of securing Patents.

PROSCH'S

Daguerreotype Rooms,

EXPRESS BUILDING, 112 BROADWAY,
Nearly opposite the City Hotel, New York.

Likenesses obtained at this establishment in superior style, and inclosed in a handsome Case for One Dollar—Fifty Cents additional if colored and sealed.

Every Portrait shall give satisfaction or no sale.

N. B. Instruction given in the art, and the most improved apparatus, &c., furnished on as favorable terms as elsewhere. GEO. W. PROSCH. feb4

Lap-welded Boiler Flues.

PROSSER'S PATENT.

THESE Flues alone, are now used in their marine engine boilers, by the French and English governments, and also by companies and private individuals for marine, locomotive, and stationary boilers where rapid generation of steam, with economy of fuel, weight and stowage is an object of consideration.

They can be obtained only, of the Patentee, at No 6 Liberty street, New York. THOS. PROSSER,
Nov 19tf. Patentee.

The Nautilus.

The most complete, improved and perfect
LIFE PRESERVER

that has ever yet been used or known, is manufactured and for sale at No. 90 Nassau street. This instrument is so constructed as to be condensed into a small compass, and may ever be carried in the pocket; but when required for use, it instantly inflates itself, and may be adjusted round the body and secured in one fourth of a minute, and will effectually secure the wearer against the possibility of drowning. The price of the article is $3,50. jan 22.

Rolling Mills, blast Furnaces & Forges,

Iron works of all descriptions, erected upon the most improved plans; steam or water powers.

Drawings, plans and estimates made for buildings, furnaces and machinery, and contracts for the whole or any part thereof taken and executed with promptness and despatch; and will also give his personal superintendence in the erection of iron works of all kinds, such as Rolling mills, blast furnaces—of hot and cold blasts—anthricite, bituminous, and charcoal or wood furnaces, forges, trip-hammers; iron, brass, and bell foundry, puddling and heating furnaces, air cupolo chaffery and refinery, or let out furnaces.

N.B.—All letters directed, post-paid, to S. B. MERKEL, Founder-machinist, millwright, draughtsman and Engineer, Philadelphia. Pa. feb11.

JOHN BROWN.

CARPENTER AND PRINTER'S JOINER.

Nos. 29 & 61 Ann-street, N. Y.

MANUFACTURER of Cases, Stands, Furniture, &c. Stereotype Blocks, of various sizes.

Box-wood and mahogany, for Engravers, always on hand.

Stereotype plates blocked at short notice.
Press, paper, and letter boards, of every description.
Book-binders' cutting and pattern boards.
Stereotype boxes, made to order.
Printers', stereotypers, type-founders's, and book-binders' jobbing work done at the shortest notice.

N. B. Orders from various sections of the country solicited, and promptly executed. nov9

The Best Ink Known,

Two Silver Medals Premium!

At the Annual Fair of the American and Mechanics' Institute for 1846, a SILVER MEDAL was awarded by each to Thaddeus Davids for "the Best writing Ink known." 500 gross 2, 4 6, 8, 16, and 32 oz. steel pen ink; 100 gross, ditto blue, red, japan, and copying ditto; 200 gross, Indelible Ink, warranted, with and without a preparation in elegant cases; 5000 lbs. wafers, all sizes and qualities from 10 to 50 lbs.; 10,000 lbs., sealing wax from 6cts. to $1, per lbs. For sale, wholesale and retail, on accommodating terms, by THADDEUS DAVIDS, Importer and manufacturer of sealing wax, wafers, inks, indelible inks, &c., No. 112 John street, New York, and by all stationers, booksellers, druggists, &c., in the United States. jny29

GURNEY'S PREMIUM DAGUERRIAN Gallery, 180 Broadway, New York.—Pictures taken at the establishment are not excelled in this country—so say his numerous patrons. The public are respectfully invited to call and judge for themselves.

W. H. BRIDGENS.

Engraver, Die Sinker,

AND STEEL LETTER CUTTER

No. 184 William, corner of Spruce st.

Name-Stamps for Blacksmiths, Stone Cutters, Carpenters and machinists, steel letters and figures of all sizes constantly on hand for marking iron, steel, brass and wood; Notary seals, desk seals, door plates made and engraved; artificial flower stamps, vainers and loofers made at the shortest notice and on most reasonable terms, feb11.

State Convention.

STATE OF NEW YORK, ss.—We, the Secretary of State, the Comptroller, and the Treasurer of the said State, having formed a Board of State Canvassers, and having, in conformity to the provisions of the act entitled "An act recommending a Convention of the People of the State," passed May 13, 1845, canvassed and estimated the whole number of votes or ballots given for and against the said proposed "Convention" at a General Election, held in the said State on the fourth day of November, in the year 1845, according to the certified statements of the said votes or ballots received by the Secretary of State in the manner directed by the said act, do hereby *determine, declare,* and *certify,* that the whole number of votes or ballots given under, and by virtue of the said act, was two hundred and forty-seven thousand, one hundred and seventeen; that of the said number, two hundred and thirteen thousand, two hundred and fifty-seven votes or ballots were given for the said Convention: That of the said first mentioned number, thirty-three thousand, eight hundred and sixty votes or ballots were given against the said Convention: And it appearing "by the said canvass that a majority of the votes or ballots given as aforesaid, are for a Convention," the said canvassers do farther *certify* and *declare,* that a Convention of the People of the said State will be called accordingly; and that an election for Delegatas to the said Convention will be held on the last Tuesday of April, in the year 1846, to meet in Convention at the Capitol in the City of Albany, on the first Monday in June, 1846, pursuant to the provisions of the aforesaid act of the Legislature.

Given under our hands, at the Secretary of State's Office, in the City of Albany, the twenty-sixth day of November in the year of our Lord one thousand eight hundred and forty-five.

N. S. BENTON, Secretary of State.
A. C. FLAGG, Comptroller.
BENJ. ENOS, Treasurer.

State of New York, Secretary's Office.—I certify the preceding to be a true copy of an original certificate of the Board of State Canvassers on file in this office.

Given under my hand and seal of office, at the City of Albany, the twenty-sixth day of November, in the year of our Lord one thousand eight hundred and forty-five.

N. S. BENTON, Secretary of State.

STATE OF NEW YORK, Secretary's Office,
Albany, January 28th, 1846.

To the Sheriff of the County of New York—*Sir:*—Notice is hereby given, that pursuant to the provisions of the act entitled "An act recommending a Convention of the People of this State, passed May 13, 1845, an election will be held on the last Tuesday of April next, in the several cities and counties of this State, to choose Delegates to the Convention to be held pursuant to the provisions of the aforesaid act and the certificate above recited.

The number of Delegates to be chosen in the County of New York will be the same as the number of Members of Assembly from the said county.

Respectfully yours,
N. S. BENTON, Secretary of State.

Sheriff's Office, New York, February 7, 1846.

The above is published pursuant to the notice of the Secretary of State, and the requirements of the statute in such case made and provided for. WM. JONES,
Sheriff of the City and County of New York.

☞ All the public newspapers in the county will publish the above once in each week until election, and then hand in their bills for advertising the same, so that they may be laid before the Board of Supervisors and passed for payment.

See Revised Statutes, vol. I, chap. vi., title 3d, article 3d—part 1st, page 140. march 18 t E.

JOHNSON'S

DINING SALOON,

No. 144 FULTON STREET.
(Near Broadway): New York.

BILL OF FARE.

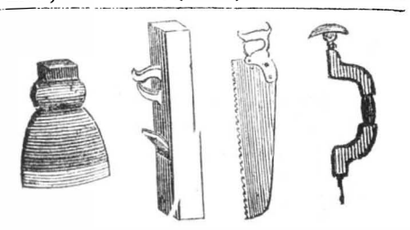
Roast Turkey,	18d	Boiled Ham,	6d
" Goose,	18d	Pork and Beans,	6d
" Chicken,	18d	Veal Pie,	6d
" Duck,	18d	Beef Steak Pie,	6d
" Beef,	6d	Chicken Pie,	12d
" Pork,	6d	Mush and Milk,	6d
" Veal,	6d	Rice and Milk,	6d
" Lamb,	6d	Lamb Pot Pie,	6d
" Pig,	12d	Fried Fish,	6d
Boiled Chicken,	12d	Fried Clams,	6d
" Mutton,	6d	Ham and Eggs,	12d
" Corned Beef,	6d	Chicken Soup,	6d
" Pork,	6d	Beef Soup,	6d
" Fish,	6d	Coffee,	6d

Dessert.

Suet Pudding	6d	Mince Pie,	6d
Indian Pudding,	6d	Apple Pie,	6d
Rice Pudding,	6d	Peach Pie,	6d
Plum Pudding,	6d	lum Pie,	6d
Bread Pudding,	6d	u mpkin Pie,	6d
Apple Dumplings,	6d	Custard Pie,	6d

Breakfast and Tea.

Beef Steak,	6d	Hot Corn Bread,	6d
Veal Pie,	6d	Indian Cakes,	6d
Mutton Chops,	6d	Boiled Eggs,	6d
Ham and Eggs,	12d	Fried Eggs,	6d
Fried Tripe,	6d	Toast,	6d
Fried Sausages,	6d	Hot Muffins,	6d
Fried Fish,	6d	Hot Rolls,	6d
Fried Clams,	6d	Tea,	3d
Fried Liver,	6d	Coffee,	3d



AT HENRY ROWNTREE'S old established *Tool Store,* at the Corner of Chambers and Chatham streets, Mechanics, Farmers, &c., will find an assortment of good Tools, suitable for almost every branch of trade.

H. R. feels obliged to his many customers, of every class, for their past patronage and hereby assures them that no pains shall be spared to procure the best articles in all variety.

H. R. has a greater part of his goods made expressly for him, and Mechanics, &c., may place confidence in them, having had the gold medal awarded him, at the late Fair, for the best tools.

First rate Razors; Pen and Pocket Knives; Table Knives and Forks, &c.

☞ Remember, at the corner of Chambers and Chatham streets. dec26

W. N. SEYMOUR & Co.

IMPORTERS AND DEALERS,
AT THE
Old Established Hardware and Tool Store,
No. 4 Chatham Square,
(at the Foot of the Bowery, N.Y.)

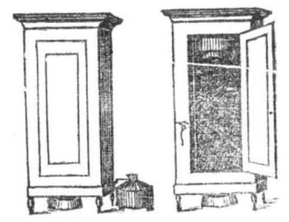
HAVE the greatest assortment of Hardware for builders; Mechanics' tools of all descriptions.

Wm. Graves & Sons' warranted caststeel files & tools.
Worrall's warranted cast steel saws.
Hoe & Co.'s do. do. do.
Cabinet Trimmings. Tin and wooden ware.
House-keeping articles of great variety.
Agricultural tools. Patent Safety Fuse for blasting.
Sole Agents, for this city, for J. A. Fay's patent Mortising Machine.

THE INVISIBLE DOOR SPRING.

W. N. S. & Co. have taken the exclusive agency, for this city, of Ellis's Invisible Door Spring, which commands a ready preference over all others, and has made arrangements to have them put on and adjusted to the doors of those who may require them; Mr. Shaffer, 75 Warren st, is engaged to superintend this department, and will promptly attend to all orders in this line.

Dec. 25.



Locke's Portable Shower Bath.

THE subscriber has the satisfaction to announce to the public, that he has perfected, and is prepared to furnish at short notice, a portable shower-bath, far superior in utility and convenience of management, to anything of the kind hitherto offered. It constitutes a light and genteel article of furniture for a bed-chamber, and so perfectly constructed, that either a lady or gentleman can at any moment enjoy a copious shower without the id of servants, and withodt having a drop of the water sprinkled on the carpet or floor. And by a slight change in a part of the apparatus, the same may be converted to a steam-bath, either plain or aromatic. These baths are manufactured and may be examined at No. 31 Ann st. JOHN LOCKE.

Dec 4.

ILLUSTRATED BOTANY.

Edited by JOHN B. NEWMAN, M. D.

Circumstances make the man, and very often, as in the present case, the book. For years there has been a steadily increasing interest felt for the vegetable kingdom. Latterly this taste has been partially gratified by the literary magazines, which owe their popularity, in a great measure to the beautiful flower prints that adorn them. One specimen a month, however, is not enough, nor is it required in such connection. A work relating exclusively to the subject, is wanted by the public, and this want, the present enterprise is intended to supply.

Preceded by a short introduction on Physiology, and a view of the Natural and Linnæan Systems, the work will be devoted to a separate consideration of each plant.—Together with our own information, we shall draw on the standard works on Chemistry, Botany, and Medicine, combining every useful item of knowledge, and without lessening its value, present it in a concise and pleasing form. Obtaining our supplies from the same sources as the bee, we hope to *secrete* as elegant a sweet for the mind, as it does for the body. The properties of each, more especially the medicinal, will be confirmed, in a great number of instances, by personal experience. To this will be added its history; its meaning in the language of flowers; and poetry, either original or selected from the gems of the children of song.

The whole illustrated by splendid colored engravings, taken from nature. full size, and finished in the highest style of modern art.

This work is designed to be eminently popular in its application, and there is enough of that which is stronger than fiction about it, to render it, in no ordinary degree, interesting and instructive.

Terms.—This work will be published monthly, with four or six flowers, handsomely painted, in each number. Price three dollars a year, or two copies sent to one address for five dollars. A *very* liberal discount allowed to agents. J. K. WELLMAN,
Publisher and proprietor, 118 Nassau st.

*** Furnished to Seminaries, Colleges, and societies, in clubs, 10 copies for $20 a-year.

PARTICULAR NOTICE.

We do not intend to confine ourselves to the botanical descriptions of each plant, but on the contrary, divested of technicality, intend to make it a thoroughly scientific work, in all the departments of Botany. It will also give information on the cultivation of Plants and Flowers. In a word, it will comprise the whole science.

We give below the *free* opinions of the press.

From the N.Y. Tribune.

"ILLUSTRATED BOTANY."—This is a new candidate for popular favor, in the shape of a monthly periodical. The first two numbers are before us, and if they may be regarded as speeimens of those which are to follow, the work will certainly prove highly attractive. It is to be devoted to a separate consideration of each plant in the vegetable kingdom, the whole illustrated by colored engravings, taken from nature, full size, and finished in the highest style of modern art. Four or six of these engravings will be given in each number. Those in the numbers already issued are of the most beautiful and splendid description. The Editor will draw on the standard works on chemistry, botany, and medicine, and thus combine in a brief form every useful item of knowledge respecting plants and flowers, their medicinal qualities, &c. To this will be added their history and their meaning in the "language of flowers." To all lovers of the beautiful in Nature and Art, we commend this work as eminently worthy of patronage.

From the Christian Advocate and Journal, (Edited by T. E. Bond, M. D,)

The painted specimens are really exquisitely done; and the great marvel with us is, how the work can be afforded at the low price of three dollars per annum, or two copies to an address for five dollars. Engravings can be cheaply multiplied, but paintings must be executed separately, and without the aid of labor-saving machinery. It will give us real pleasure to announce the successive numbers of this beautiful periodical, as we have been led to think the study of Botany not only as an innocent recreation, but eminently promotive of piety.

From the N. Y. Surgical and Medical Reporter.

We have received the first number of "The Illustrated Botany." This periodical is got up in a very neat form, and displays taste and judgment in its Editor, who, being a well educated medical man, is prepared to make a work of this kind very interesting and useful to the general reader. The colored plates are unsurpassed in beauty and finish.

From the Protestant Churchman (N. Y.)

ILLUSTRATED BOTANY.—The design of this work is admirable. It is intended to comprise scientific descriptions of the most valuable native and exotic plants, with their history, medicinal properties, &c. &c.

N. B. Publishers of newspapers who give the above prospectus three insertions, shall receive the work one year. march 26.

ADAMS & Co.'S

GREAT EASTERN, SOUTHERN, AND WESTERN

Daily package Express.

ADAMS & CO. respectfully give notice that their arrangements for their various Expresses have been perfected with the greatest care, and enable them to forward, with the utmost security and rapidity, and at moderate rates, Merchandize of every description, viz.:—Boxes, Bundles, Packages, Specie, Bank Notes, samples valuable papers, &c. &c., to

Boston,	Hartford,
Worcester,	Springfield,
Norwich,	Philadelphia,
New London,	Baltimore,
New Haven,	Washington, D.C.
Fredericksburg, Va.	Wilmington, N. C.
Richmond,	Charleston,
Norfolk	Savannah,
Portsmouth,	Augusta, Ga.
Petersburg,	Cumberland,
Wheeling,	Pittsburg,
Cincinnati,	Louisville,
St. Louis.	

Our Agents in these several Cities pay particular attention to the collection and payment of Notes, Drafts, Bills, &c., and all other business appertaining to our Express.

In connexion with Messrs. Wilmer & Smith, of Liverpool, we have established an European Express, similar in its design and operation to our American Express, and alike beneficial to the Merchants and Importers of both countries. Custom House business promptly attended to.

Express for the South and West leaves the Office daily, at 1-4 to 3, and half past 4 P.M.

Express for the East at 1-4 to 5 P. M.

Merchants and others will bear in mind, we run the only Express Cars between New York and Baltimore.

feb4 nv9o5w ADAMS & CO., 16 Wall street,

© 1846 SCIENTIFIC AMERICAN, INC.